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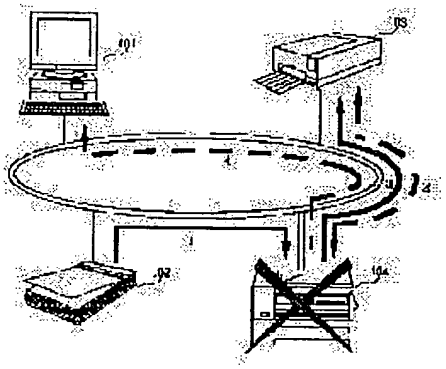
(54) INFORMATION PROCESSOR AND ITS METHOD

(57)Abstract:
PROBLEM TO BE SOLVED: To lighten the burden on the operation and to utilize usable optimum device resources by recognizing the state of received information and quitting executing a process when it is judged from the analysis result and state that the process should not be executed.
SOLUTION: If a printer 104 is defective in, for example, printing operation when the user of a PC 101 gives a JOB for outputting information inputted through a scanner 102 to the printer 104, it is judged that the printer 104 is usable to perform the given JOB and a printer 103 is able to perform the JOB for outputting the information, so it is decided that the received information is sent to the printer 103. Consequently, the printer judges that the JOB is performed not by itself, but by the printer 103, and indicates the JOB to the printer 103. The PC 101 of the user having indicated the JOB is informed by electronic mail that the indicated output is done by the printer 103.



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CLAIMS

[Claim(s)]
[Claim 1] A receiving means to receive information, an analysis means to analyze the received information, and a decision means to opt for the processing which should be performed based on the analysis result of this analysis means, An activation means to perform said processing for which it opted, and a recognition means to recognize a situation, A decision means to judge whether said processing should be performed with said activation means based on said analysis result and said situation, The information processor characterized by having a termination means to stop activation of said processing by said activation means when [which should be performed with this decision means] it is judged that it does not come out.
[Claim 2] The information processor according to claim 1 characterized by having a directions means to direct activation of said processing to other equipments.
[Claim 3] The information processor according to claim 2 characterized by having an advice means to notify a user of having directed activation of said processing to equipment besides the above.
[Claim 4] Said situation is an information processor according to claim 1 characterized by including the own situation of equipment.
[Claim 5] Said situation is an information processor according to claim 1 characterized by including the situation of other equipments.
[Claim 6] Said situation is an information processor according to claim 1 characterized by including a user's situation.
[Claim 7] The information processor according to claim 1 characterized by stopping activation of the processing concerned when the processing for which it opted with said decision means is the processing unnecessary for a user recognized by said recognition means.
[Claim 8] The information processor according to claim 1 characterized by stopping activation of the processing concerned when the processing for which it opted with said decision means is the processing which is not permitted for the user recognized by said recognition means.
[Claim 9] The information processor according to claim 1 with which processing for which it opted with said decision means is characterized by stopping activation of the processing concerned when the user recognized by said recognition means is processing for a different user.
[Claim 10] said decision means should perform said processing with other equipments rather than said activation means — ** — when it judges, it should perform with said activation means — not coming out — judging — said directions means — activation of said processing — said — — others — the information processor according to claim 2 characterized by what is directed to equipment.
[Claim 11] The information processor according to claim 1 characterized by having an advice decision means to judge whether a user is notified of the processing concerned in advance of activation of said processing, based on said analysis result.
[Claim 12] the case where activation of said processing is directed to other equipments — being concerned — others — the information processor according to claim 2 which will be characterized by rerunning decision by said decision means if directions are refused from

equipment.
[Claim 13] It is the information processor according to claim 2 characterized by to direct activation of said processing to other equipments when it is judged that it is appropriate to have an equipment decision means to judge whether it is appropriate to recognize the situation of equipment itself and other equipments with said recognition means, and to perform with which equipment from the recognized situation, and to perform with other equipments.
[Claim 14] The information processor according to claim 13 characterized by having a proposal means to form an alternative and to propose to a user when activation by which equipment is also judged not to be suitable by said equipment decision means.
[Claim 15] The receiving process which receives information, the analysis process which analyzes the received information, and the decision process which opts for the processing which should be performed based on the analysis result of this analysis process, The activation process which performs said processing for which it opted, and the recognition process which recognizes a situation, The decision process which judges whether said processing should be performed according to said activation process based on said analysis result and said situation, The information processing approach characterized by having the termination process which stops activation of said processing by said activation process when [which should be performed according to this decision process] it is judged that it does not come out.
[Claim 16] The information processing approach according to claim 15 characterized by having the directions process which directs activation of said processing to other equipments.
[Claim 17] The information processing approach according to claim 16 characterized by having the advice process which notifies a user of having directed activation of said processing to equipment besides the above.
[Claim 18] Said situation is the information processing approach according to claim 15 characterized by including the own situation of equipment.
[Claim 19] Said situation is the information processing approach according to claim 15 characterized by including the situation of other equipments.
[Claim 20] Said situation is the information processing approach according to claim 15 characterized by including a user's situation.
[Claim 21] The information processing approach according to claim 15 characterized by stopping activation of the processing concerned when the processing for which it opted according to said decision process is the processing unnecessary for a user recognized according to said recognition process.
[Claim 22] The information processing approach according to claim 15 characterized by stopping activation of the processing concerned when the processing for which it opted according to said decision process is the processing which is not permitted for the user recognized according to said recognition process.
[Claim 23] The information processing approach according to claim 15 that processing for which it opted according to said decision process is characterized by stopping activation of the processing concerned when the user recognized according to said recognition process is processing for a different user.
[Claim 24] in said decision process, said processing should be performed with other equipments rather than said activation process — ** — the information processing approach according to claim 15 which judges that it does not come out and is characterized by the thing which should perform according to said activation process, and for which activation of said processing is directed to other equipments at said directions process when it judges.
[Claim 25] The information processing approach according to claim 15 characterized by the advice decision process of judging whether a user being notified of the processing concerned in advance of activation of said processing based on said analysis result.
[Claim 26] the case where activation of said processing is directed to other equipments — being concerned — others — the information processing approach according to claim 16 which will be characterized by rerunning decision by said decision means if directions are refused from equipment.
[Claim 27] It is the information-processing approach according to claim 24 characterized by to

direct activation of said processing to other equipments when it is judged that it is appropriate to have the equipment decision process of judging whether it being appropriate recognizing the situation of equipment itself and other equipments according to said recognition process, and performing with which equipment from the recognized situation, and to perform with other equipments.

[Claim 28] The information processing approach according to claim 27 characterized by having the proposal process which forms an alternative and is proposed to a user when activation by which equipment is also judged not to be suitable according to said equipment decision process.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the information processing system to which two or more equipments were connected, and its approach.
[0002]
[Description of the Prior Art] In order to perform various processings in an environment with two or more available equipments, the equipment with which the user was suitable for each processing is chosen, and it is common to order activation of the processing corresponding to selected equipment.
[0003] For example, in order to transmit the information created by computer, and the information read with the scanner in the form recorded on the distant partner by paper, the partner's printer connected through a network etc. can be specified, and it can print by the specified printer.
[0004]
[Problem(s) to be Solved by the Invention] However, in the above-mentioned Prior art, processing a certain directed equipment was instructed to be by failure, poor ability, etc. was not completed at all, or when it was not able to do thoroughly, there was a problem that the processing the equipment was ordered to perform could not attain as a user's object. In order to have solved this, the user needed to check the processing result and needed to order other equipments anew to perform the same processing or additional processing.
[0005] Moreover, in order to attain the object of processing, even if there was equipment more suitable than the equipment which the user directed, it has processed only with the equipment which the user directed.
[0006] Moreover, it may be processing for a specific user depending on processing, and may be unnecessary or unsuitable to a current user.
[0007] The object of this invention can solve such a conventional technical problem, can mitigate the burden of actuation of the user for attaining the object of processing, can utilize the optimal available device resource, and is to offer the information processing system which can avoid unnecessary or unsuitable processing, and its approach.
[0008]
[Means for Solving the Problem] A receiving means to receive information to an information processor according to this invention in order to solve the above-mentioned technical problem, An analysis means to analyze the received information, and a decision means to opt for the processing which should be performed based on the analysis result of this analysis means, An activation means to perform said processing for which it opted, and a recognition means to recognize a situation, It has a decision means to judge whether said processing should be performed with said activation means based on said analysis result and said situation, and a termination means to stop activation of said processing by said activation means when [which should be performed with this decision means] it is judged that it does not come out.
[0009] Moreover, the receiving process which receives information to the information processing approach according to other modes of this invention, The analysis process which analyzes the

received information, and the decision process which opts for the processing which should be performed based on the analysis result of this analysis process, The activation process which performs said processing for which it opted, and the recognition process which recognizes a situation, It has the decision process which judges whether said processing should be performed according to said activation process based on said analysis result and said situation, and the termination process which stops activation of said processing by said activation process when [which should be performed according to this decision process] it is judged that it does not come out.

[0010]

[Embodiment of the Invention]

[Operation gestalt 1] Drawing 1 is system configuration drawing of this operation gestalt, and expresses two or more equipments connected to the network. In this, in a personal computer (PC) and 102, a scanner and 103 express a color printer and, as for 101, 104 expresses the monochrome printer.

[0011] With this operation gestalt, in the system (when it is drawing 1 , it connects with the network) to which two or more equipments were connected, when activation of JOB is directed to a certain equipment, he understands what JOB which should analyze the object and he should perform from the content of JOB is. As a result of understanding, information required for JOB which should be performed is acquired and performed. In case JOB is performed, when there are technique more effective than the directed content and another equipment, processing is directed to other equipments or advice for proposing the technique to a user is performed.

[0012] Moreover, it also performs refusing the directions itself depending on the content of JOB. Here, there is new JOB generated by itself at the activation directions from a user's alter operation and other devices, the result of having analyzed these JOB(s), and the time of an idling in the class of JOB. For example, in printing a document by another printer as reading from a scanner, the following JOB(s) occur.

** The read and analysis processing of a document in which the analysis ** scanner of the content of the directions to a scanner analyzed and generated the directions (and thing for which the document was set) received from the user about the document which the user set to the scanner, The directions processing ** scanner to the printer for printing the read document generated according to directions processing. the printing processing whose printing directions ** printer to a printer analyzed and generated the printing directions received from the scanner — the detail of such a generation management method of JOB is explained henceforth [the operation gestalt 11].

[0013] Below, the procedure of performing these processings with two or more equipments is concretely explained based on a drawing.

[0014] Drawing 2 is a functional block diagram for processing this operation gestalt. The JOB receipt section 201 receives JOB from a user or other equipments. Received JOB is registered into the JOB table 202. The JOB analysis section 203 takes out and analyzes JOB registered into the JOB table 202. The other devices information acquisition section 204 acquires an attribute, a current condition, etc. of other connected devices. The situation seal step 207 judges a situation from the current condition of other devices etc.

[0015] The optimal planning section 210 stands the optimal plan about activation of JOB. In the JOB activation decision section 206, when performing whether JOB is performed or not, it judges performing by other devices whether it performs with self-equipment etc. When performing by other devices, activation of JOB is directed to other devices by the directions section 205 to other devices. When performing with self-equipment, it performs in the JOB activation section 209. The advice section 211 of activation notifies a user of having directed activation to an activation result or other devices etc.

[0016] Drawing 3 is hardware configuration drawing of each equipment for realizing processing of this operation gestalt.

[0017] I/O301 performs I/O with the equipment exterior. CPU302 controls each part of equipment while performing a program. ROM303 memorizes a program, fixed data, etc. which should perform CPU302 corresponding to each flow chart mentioned later. RAM304 memorizes

temporarily various variables generated during activation of processing, such as an attribute, a current condition, etc. of the JOB table 202 and other devices by which it acquired in the other devices information acquisition section 204, medium data, etc. Moreover, a program is loaded to RAM304 from the equipment exterior etc., and you may make it make it memorize.
[0018] Drawing 4 is the flow chart which showed the flow of processing of this operation gestalt. First, the content of the JOB table is initialized at step S109. At step S110, it judges whether JOB was inputted by confirming whether there is new JOB generated by itself at the input JOB from the input JOB from a user, the device which can detect a system, the result of having analyzed these JOB(s), and the time of an idling. If inputted, JOB inputted into the JOB table will be added at step S111. If it investigates whether there is JOB on a JOB table and is shown in it at step S112, JOB will be taken out at step S113. At step S114, the given directions are analyzed and the object of JOB is analyzed from the information. At step S115, JOB which should be performed further is probed from the analyzed directions. At step S116, JOB probed at step S115 is registered.
[0019] At step S117, it investigates whether there is non-performed JOB, and if it is, it will progress to step S118. At step S118, when JOB judges whether activation is possible and is judged to be impossible, return and JOB which must newly be performed are probed to step S115. At step S119, JOB is performed and it returns to step S117.
[0020] For example, it will be analyzed, if it is a user's object that a document [finishing / printing] comes to hand when a user gives directions so that a document may be printed by another printer as reading from a scanner. Moreover, the read and analysis processing of a document in which the scanner analyzed and generated the information received from the user, and the directions processing to the printer for printing the read document are probed as JOB in this case. Explanation of such detailed flow is explained henceforth [the operation gestalt 11] based on an example.
[0021] Drawing 5 is drawing having shown the flow of the processing which chooses the optimal printer from two or more printers, and performs printing.
[0022] In drawing 5 , the instruction from a host computer, an instruction of the natural language which the user as directions from remote control etc. emitted with voice, and the bar code or text read in the cover page is analyzed, and JOB information is transmitted and inputted.
[0023] The device which received the transmitted JOB information analyzes JOB, outputs by choosing automatically the printer which can perform processing suitable for JOB, and when there are advice directions further, it chooses and notifies the optimal media according to an advice place. Therefore, to a demand of a user, with reference to the configuration of a printer, a suitable printer is chosen and printing is performed. According to a situation, it also performs distributing processing to two or more printers in that case. Moreover, when there are advice directions, the optimal media for advice are chosen and the printer name which performed printing, termination of printing, etc. are notified. As a demand of a user, there are a paper size, a quality of printed character, a color, a time limit (for example, I want to print by 5:00), etc. Moreover, as a configuration of a printer, there are a class of printer, the number, the engine performance, a current condition (normal actuation is carried out, there is a queue of the waiting for printing, or forms and toners are insufficient), etc. As media for advice, a user's terminal, voice reports, tell by telephone, a message is sent to a pocket bell, or it transmits by the electronic mail or FAX by using the content of advice as a document.
[0024] Below, according to the flow chart of drawing 4 , the situation that each equipment processes processing of drawing 5 is explained.
[0025] First, when the directions which are step S110, for example, are urgent and will output a certain document by 5:00 to a host computer are able to be given, JOB is added to a JOB table at step S111. At step S113, the directions to which JOB was given at ejection and step S114 are analyzed, and the object of JOB is analyzed from the information. At step S115, following JOB is probed from the analyzed directions.
[0026] ** Acquire the information (a paper size, a quality of printed character, color document, etc.) for choosing the printer suitable for an output from the document which should be outputted, and information, such as the time limit.

** Choose the printer suitable for the information on ** from the connected printer.
** Inspect whether the selected printer has a failure in an output.
** Output to the printer chosen automatically.
** Notify having performed the selected printer and the output.
[0027] At step S116, JOB probed at step S115 is registered. The following is repeated until it is judged that all probed JOB(s) were lost at step S117. At step S118, when JOB judges whether activation is possible and is judged to be impossible, JOB which must newly be performed is probed. At step S119, probed JOB is performed in order.
[0028] [Operation gestalt 2] Drawing 6 is drawing which explains the case where a remote controller (remote control) is used, as an approach of directing to various devices.
[0029] This remote control 605 is equipped with a display, only approaches devices, such as printers 601 and 602, and FAX603, PC604, can display the control panel and information corresponding to that device, and can give and control directions to that device. Furthermore, the device which is distantly separated from the device near the remote control 605 through a network is also controllable.
[0030] Moreover, the monitor of the status of each device can be carried out, and remote control 605 can display it, and can also acquire the status of the device on a network which separated distantly through the device near the remote control 605.
[0031] [Operation gestalt 3] Drawing 7 is drawing showing the example at the time of reading a document from a scanner and transmitting to a specific printer.
[0032] After a document is read from a scanner 701, a user specifies a transmission place (using voice etc.). Or the transmission place is specified as the cover page and a transmission place is determined automatically. Thus, when it is in the condition which cannot print a transmission place as a transmission place as a result of acquiring the condition of ** transmission place after the monochrome printer A702 is determined, it transmits to another printer (for example, monochrome printer B703) automatically, and prints.
** When the printer specified as a transmission place cannot print (from conditions, such as a color and a paper size), transmit only the page to other printers (for example, if it is a color color printer C704).
** In the case of the document of large quantity pagination, print by dividing into some printers.
** When the destination is specified as the transmission place, transmit to the destination automatically.
[0033] [Operation gestalt 4] Drawing 8 is drawing showing the example at the time of transmitting to the specific printer which reads a document from a scanner and cannot manage a scanner (by reasons of network domains differing).
[0034] After a document is read from the scanner 701 in Austin, a user specifies a transmission place (using voice etc.). Or the transmission place is indicated by the cover page by the character string or the bar code, it is read, and a transmission place is automatically determined by recognition and interpreting. Thus, after the monochrome printer A702 which is in Tokyo as a transmission place is determined and a document is actually sent to the monochrome printer A702, in the case of the condition which ** monochrome printer A702 cannot print by itself, it transmits to another printer (monochrome printer B703), and prints.
** When the monochrome printer A702 cannot print the document received (from conditions, like that a color page is included and paper sizes differ), transmit only the received whole document or the page which cannot be printed to other printers (for example, if it is a color color printer C704).
** While the monochrome printer A702 prints by itself in the case of the document of large quantity pagination, print by dividing into other printers.
** The monochrome printer A702 transmits to the destination automatically, when the destination is specified as itself.
[0035] The point of difference between the operation gestalt 3 and the operation gestalt 4 has the printer 702 which received the document from the scanner 701 in the point of determining the destination, by the operation gestalt 4 to the scanner 701 having determined the transmission place with the operation gestalt 3.

[0036] [Operation gestalt 5] Drawing 9 is drawing showing the example at the time of transmitting to the specific printer which reads a document from a scanner and cannot manage a scanner for the reasons of network domains differing.
[0037] After a document is read from the scanner 701 in Austin, a user specifies a transmission place (using voice, a keyboard, etc.). Or the transmission place is indicated by the cover page by the character string or the bar code, it is read, and a transmission place is automatically determined by recognition and interpreting. Thus, after the monochrome printer A702 which is in Tokyo as a transmission place was determined and a document is actually sent to the monochrome printer A702, it is transmitted to the personal computer 705 in which more advanced processing is possible. Consequently, a personal computer 705 judges that this document is an urgent document (from the alphabetic character a covering letter "is urgent"), and if schedule data etc. show where the reception hand of a document is now, it will transmit it to that location (for example, Atsugi). the destination is not a printer but FAX D706 in that case — etc. — if media differ, media conversion will be performed and it will transmit.
[0038] [Operation gestalt 6] Drawing 10 is drawing showing the example at the time of transmitting to the specific printer which reads a document from a scanner and cannot manage a scanner for the reasons of network domains differing.
[0039] After a document is read from the scanner 701 in Austin, a user specifies a transmission place (using voice etc.). Or the transmission place is indicated by the cover page by the character string or the bar code, it is read, and a transmission place is automatically determined by recognition and interpreting. Thus, after the monochrome printer A702 which is in Tokyo as a transmission place was determined and a document is actually sent to a printer A702, it is transmitted to the personal computer 705 in which more advanced processing is possible. Consequently, a personal computer 705 can recognize the reception hand of a document, can create an advice sentence, and can notify arrival of a document to the reception hand of a document by telephone 707.
[0040] [Operation gestalt 7] Drawing 11 is drawing showing the example in the case of notifying the condition of a printer.
[0041] If PC1102 acquires the status of a printer 1103 through a network and change of the status, such as an error and generating of an event, is detected, according to the content, it will determine advice places, such as a user or a manager, and will notify using the media corresponding to the determined advice place. For example, notify to the terminal 1101 of a user or a manager by E-mail, a telephone 1104 is contacted by phone, or a message is transmitted to a pocket bell 1105.
[0042] Thereby, in the example of drawing 10 , it may replace with a telephone 707 and an electronic mail and a pocket bell may notify reception of a document.
[0043] [Operation gestalt 8] With this operation gestalt, when the equipment to which JOB was directed performs JOB by itself, it does not carry out as it is, but before performing the content of JOB, depending on the class and conditions of JOB, it notifies and checks at a user, or it cancels JOB judged to be unnecessary for a user.
[0044] Drawing 127 is the information which specified whether an advance notification would be performed corresponding to the class and conditions of JOB.
[0045] Drawing 12 is a flow chart showing the procedure of this operation gestalt.
[0046] First, before performing directed JOB at step S120, it judges in analyzing the content indicated that the assignment information on the advance notification corresponding to the class and conditions of JOB of drawing 127 in whether a user should be notified of the processing to perform or the content is referred to, or the operation gestalt 29 explains by the cover page etc. When notifying in advance, the processing and the content which progress to step S122 from step S121, and are performed are notified. Furthermore, if there is need at step S123, after getting authorization of activation from a user, JOB will be performed at step S124.
[0047] On the other hand, when not notifying in advance, it judges whether it is step S125 and is required JOB for a user, if required, JOB will be performed at step S127, but if unnecessary, JOB will be canceled at step S128.
[0048] Next, when the content of JOB is informational filing, before a system performs

informational filing, the content is analyzed, and the example which performs processing which tells a user the content is explained.
[0049] Drawing 13 is filing processing and is drawing showing the case where the information to file is told to a user in advance. As for a file storage unit and 1302, 1301 is [a scanner and 1303] user terminals.
[0050] Processing of the scanner 1302 in drawing 13 is explained according to the flow chart of drawing 1212 .
[0051] At step S120, since it is JOB which files information, with reference to the assignment information on drawing 127 , it judges that the information filed before filing is notified, and information is scanned. Processing is passed to step S122 in order to notify the information to file at step S121. At step S122, the scanned information is notified to a user terminal 1303 through a network. JOB of filing is performed at step S124.
[0052] Next, when the 1st sheet is received and the content is analyzed, when there is receipt information, and judged as the information which is not related to a user at all, the example which does not receive the information after it is explained.
[0053] Drawing 14 is drawing in the case of judging whether it is required [from the first page] in a lot of received data, or unnecessary, and canceling the information after degree page. 1401 is a receiving side and 1402 is PC of a transmitting side.
[0054] Processing of PC1401 in drawing 14 is explained according to the flow chart of drawing 12 .
[0055] As a result of referring to the assignment information on the advance notification corresponding to the class and conditions of JOB of drawing 127 at step S120, since it is only informational reception, it is judged that an advance notification does not carry out. Processing is passed to step S125 at step S121. Since the page of the beginning of the received information is analyzed and it is with "information to a general-affairs person in charge" at step S125, it is the information which is not related to a user, and it is judged that reception of this information is unnecessary. Processing is passed to step S128 at step S126. At step S128, while canceling the 1st sheet which received, processing is ended without receiving the information after the 2nd sheet.
[0056] [Operation gestalt 9] Drawing 15 is a flow chart which shows the procedure of this operation gestalt. With this operation gestalt, the equipment to which activation of processing was directed judges whether it should perform for equipment itself, or it should perform with other equipments, and directs processing to activation or other equipments in person according to a decision result.
[0057] First, in step S150, if whether JOB was inputted judges and it is inputted, JOB inputted into the JOB table will be added at step S151. If it investigates whether there is JOB on a JOB table and is shown in it at step S152, JOB will be taken out at step S153. At step S154, the given directions are analyzed and the object of JOB is analyzed from the information. The own situation of equipment is judged at step S155. At step S156, the situation of other equipments according to the object of JOB is judged.
[0058] If it is optimal to perform by oneself based on the situation of equipment itself and other equipments, it progresses to step S158 from step S157, and it will determine to perform by oneself and JOB will be performed by itself at step S159. On the other hand, if performing by oneself is not optimal and the optimal equipment according to the object of JOB exists in others, it will progress to step S161 from step S160, and will determine to perform JOB with equipments other than oneself, and activation of JOB will be directed to other equipments according to the object at step S162. At step S163, a user is notified of having performed JOB with equipments other than oneself.
[0059] Moreover, if the equipment according to the object of JOB does not exist in others, it progresses to step S164 from step S160, the optimal approach which does not spoil the object of JOB is planned, and the plan is proposed to a user at step S165.
[0060] Drawing 16 is drawing showing the information flow of this operation gestalt.
[0061] When the user of PC101 gives JOB which outputs the information inputted with the scanner 102 to a printer 104, it judges that given JOB cannot perform a printer 104, and a

printer 104 finds the printer 103 which can take other equipments and communication and can perform given JOB, when it is a printing malfunction. ** which does not perform JOB by itself but is performed by the printer 103 by this is judged, and JOB is directed to a printer 103. Furthermore, in order to tell a user the action which he performed, it notifies to PC101. Drawing 16 expresses this flow with an arrow head.

[0062] Below, in processing of drawing 16 , the flow chart of drawing 15 is met and the procedure which each equipment processes is explained.

[0063] First, if processing of a scanner 102 is explained, at step S150, information will be scanned and JOB which transmits information to a printer 104 will be received. At step S151, this JOB is added to a JOB table, and JOB is taken out at step S153. He understands that it is JOB which scans data and transmits at step S154. It judges that there is no problem in scanning the information which he was operating normally and was directed and transmitting at step S155.

[0064] At step S156, he understands that JOB cannot be turned to other equipments. At step S157, since performing by oneself is optimal, processing is passed to step S158. At step S158, it determines to scan information by oneself, information is scanned at step S159, and information is transmitted to a printer 104 in the path of 1 through a network.

[0065] On the other hand, by the printer 104, JOB which outputs the received information at step S150 is received. At step S151, this JOB is added to a JOB table. JOB is taken out at step S153. At step S154, he understands outputting the information of the user of PC101 to a form from the received information. At step S155, the toner is lost for itself, and it is judged that it cannot output to a form. At step S116, it communicates and it is judged that there is a printer 103 in which an output is possible whether there is any printer which can output the information otherwise received through the network (2 paths).

[0066] At step S157, since it cannot perform by itself, processing is passed to step S160. At step S160, it determines to transmit the information which received JOB of outputting information, to the printer 103 at step S161 since it was able to perform by the printer 103. It directs to output the information transmitted to a printer 103 at step S162 (3 paths). It notifies by E-mail having performed the output directed to PC101 of the user who directed JOB at step S163 by the printer 103 (4 paths). Drawing 128 is drawing showing an information flow in case the equipment according to the object of JOB does not exist.

[0067] When the user of PC101 gives JOB which outputs the information inputted with the scanner 102 to a printer 104, the printer 103 according to the object of JOB that the printer 104 took other equipments and communication as printing with a toner piece is impossible, and the printer 104 was given is found, and the situation is judged. here, in order to propose to a user, it notifies to PC101 recovering the condition which can print printers 104 or 103 as optimal plan, and printing, since a printer 103 cannot be printed with a form piece, it is alike other than this and the printer according to the object of JOB does not exist. Drawing 128 expresses this flow with an arrow head.

[0068] Next, in processing of drawing 128 , the flow chart of drawing 15 is met and the procedure which each equipment processes is explained.

[0069] It is the same until a scanner 102 reads a document and transmits to a printer 104. By the printer 104, JOB which outputs the received information at step S150 is received. At step S151, this JOB is added to a JOB table. JOB is taken out at step S153. At step S154, he understands outputting the information of the user of PC101 to a form from the received information. At step S155, the toner is lost for itself, and it is judged that it cannot output to a form. At step S116, although it communicates, a printer 103 cannot print whether there is any printer which can output the information otherwise received through the network because of a form piece, either, and it is judged that a device suitable out of it does not exist.

[0070] At step S157, since it cannot perform by itself, processing is passed to step S160. At step S160, since the device which can perform JOB of outputting information does not exist, it progresses to step s164. At step s164, the optimal approach for realizing printing which is the object of JOB of outputting information is planned. Consequently, it is planned that it is the optimal approach to return to normal the status of the device which can be printed. At

continuing step s165, it proposes to a user recovering the condition which can print the printer 104 of a toner piece, or the printer 103 of a form piece by Window as shown in drawing 129 according to the planned result. Then, change of a user's answer and the status of the printer itself is recognized as an input JOB, same processing is performed, and a user's object can be attained.

[0071] The detail of the planning described above is explained henceforth [the operation gestalt 11] based on an example.

[0072] [Operation gestalt 10] In processing of the operation gestalt 9 at steps S158 and S159 In judging that JOB is performed by itself, and performing JOB directed further, when performing The existence of the generating in question is analyzed in a detail like the procedure of drawing 17 mentioned later, and when it is judged that it is not suitable to carry out JOB activation depending on the environment and the situation of performing JOB, a problem may be notified, or JOB may be refused.

[0073] For example, the directions are refused, when there are directions of printing of a confidential document and it is not checked with an authorized user.

[0074] Drawing 17 is a flow chart showing the detailed procedure of JOB activation.

[0075] At step S170, it analyzes whether it is satisfactory to activation of directed JOB. If there is no problem in activation of JOB at step S171, JOB will be performed at step S175. If there is a problem, it will judge whether a user is notified of the generated problem at step S172, or activation of JOB is refused. When notifying, a problem is notified at step S174. On the other hand, when refusing, it is step S176, and JOB is refused and refusal is notified.

[0076] The case where it points so that the extra sensitive information which the user of PC101 read with the scanner 102 may be hereafter outputted to a printer 104 is explained based on drawing 15 and 17. Drawing 18 is drawing showing the example of the extra sensitive information to read.

[0077] First, with a scanner 102, at step S150, information is scanned and JOB which transmits information to a printer 104 is received. At step S151, this JOB is added to a JOB table. JOB is taken out at step S153. He understands that it is JOB which scans data and transmits at step S154. It judges that there is no problem in scanning the information which he was operating normally and was directed and transmitting at step S155.

[0078] At step S155, he understands that JOB cannot be turned to other equipments. At step S157, since performing by oneself is optimal, processing is passed to step S158. At step S158, it determines to scan information by oneself.

[0079] At step S170, as a result of scanning information, it analyzed that it was the confidential document for which an output is improper. There is a problem in activation of JOB at step S171. At step S172, it is judged that JOB (scan and output information) is refused. At step S173, since JOB is refused, processing is passed to step S176. Refusal of JOB is notified at step S176.

[0080] Moreover, similarly, when two or more users use the same system, the present user can be recognized from a login name etc. and directions of the output of the content other users' file can be refused. Moreover, if the user of the destination differs from the present user also when a document is received from not directions but the exterior from a user, the output of an incoming correspondence and advice of the data of reception are refusable, or processing can also be suspended until the user of the destination uses a system.

[0081] [Operation gestalt 11] The flow of processing is explained according to drawing 4 . First, a JOB table is initialized at step S109. It is confirmed whether, at step S110, there is any input from the input from a user, the device which can detect a system. Input analysis for analyzing the content inputted at the above-mentioned step at step S111 JOB It adds to a JOB table. It can perform at step S112. It confirms whether JOB exists, and if it is, it can perform at step S113. JOB is acquired. He understands the object which serves as a background which was going to perform JOB at step S114.

[0082] At step S115, from the condition of the inputted content, the device which can detect a system, and the information which the system knows now and others, the processing which it is considered is planned, and if required of step S116, new JOB will be added. Step S117- By S119, processing is performed according to the content planned at step S115. If lost, it will return to

step S110 repeatedly, until JOB is lost.
[0083] A user The case where it is going to print <file A> is explained. Drawing 22 shall be drawing showing the content of <file A>, and the part of the picture of a vehicle shall be drawn in the color. Moreover, drawing 23 is drawing showing the structure of a system of this operation gestalt, a user performs printing directions from PC2301, the monochrome printer 2303 is set up as a usually used printer, and the color printer 2302 is also connected in addition to it.
[0084] JOB table initialization is carried out at step S109. JOB performed at step S111 when anything does not have an input is added to a JOB table (drawing 19). Moreover, drawing 20 At Window, it is a file name. If <file A> is specified and printing is chosen, at step S110, it will be judged that there is an input and it will progress to step S111. At step S111, as shown in drawing 21 , the input analysis JOB is added to a JOB table (drawing 21). It can perform at step S112. Since JOB exists, it progresses to step S113. It can perform at step S113. JOB: Input The analysis of "printing <file A>" is acquired. step S114 — an input — "printing <file A>" It is understood that the object is printing <file A>.
[0085] At step S115, it plans proposing printing to a color printer from the following condition and situation to a user.
- The part of a color is contained in <file A> (part of the vehicle of drawing 22).
- The usable color printer 2302 exists (drawing 23).
[0086] A user is asked to "Whether to print by the color printer" at step S119 (drawing 24). Simultaneously, JOB of a response in case there is no response of a user is added to a JOB table (drawing 25). And it returns to step S110.
[0087] If there is no intercadence force for 10 minutes, since JOB which can be performed exists by step S112 at step S110, it progresses to step S113. JOB which can be performed at step S113 : A response in case there is no response of a user is acquired.
[0088] At step S114, it is understood that the object of a response in case there is no response of a user is knowing whether your accepting a proposal. At step S115, it opts for what a user is asked using a telephone from the following condition and situation.
- The user knows the telephone number of the location which is now (schedule data of drawing 26 R> 6).
- It must print immediately (with the schedule data of drawing 26 , file A is used for a business talk from 13:00).
[0089] A user is asked to "Whether to print by the color printer" at step S119 (drawing 27). Simultaneously, JOB of a response in case there is no response of a user is added to a JOB table (drawing 28). It returns to step S110.
[0090] step S110 — drawing 27 — like — a user — "— yes — well — " — ** — if it says, it will be judged that there is an input and it will progress to step S111. At step S111, it is the input analysis JOB. It adds to a JOB table (drawing 21). Since JOB which can be performed exists at step S112, it progresses to step S113. the JOB:input which can be performed at step S113 — " — it is and the analysis of "is acquired well. It inputs at step S114. "is and it is understood well that the object of "is that having accepted the proposal is shown.
[0091] It determines to send <file A> to a color printer 2302, and to print it at step S115. Step S118 <file A> is sent to a color printer 2302, and is printed. Simultaneously, JOB for the check of whether printing was completed normally is added to a JOB table (drawing 29). It returns to step S110.
[0092] If the printer status changes to input nothing at step S110 and changes to "those with printed document" "out of printing" like drawing 30 at step S112, since JOB which can be performed exists, it progresses to step S113. JOB which can be performed at step S113: Acquire the processing corresponding to the printer status. Since it is the semantics that the document with which the status "those with a printed document" was printed is left behind to the tray of a printer from the printer status table of drawing 31 at step S114, it is understood that the object is that a printed document passes into a user.
[0093] Since a user may come to picking by step S115 immediately, at it, it determines to wait. At step S116, JOB for the check of whether to have come the printed document to picking is added to a JOB table (drawing 32). It returns to step S110. There is no intercadence force at

step S110 for 10 minutes. Since JOB which can be performed exists at step S112 supposing a printed document is left behind, it progresses to step S113. JOB which can be performed at step S113: Acquire a response in case there is a printed document. Since it is the semantics that the document with which the status "those with a printed document" was printed is left behind to the tray of a printer from drawing 31 R> 1 at step S114, it is understood that the object is that a printed document passes into a user. It is determined that a user judges that he forgets and it will notify "A printed document is in a color printer" at step S115 since a document is left behind for 10 minutes. At step S119, it notifies "A printed document is in BJC600" (drawing 33). Simultaneously, JOB of a response in case there is no response of a user in a JOB table, and JOB of the response at the time of coming a printed document to picking are added (drawing 34 R> 4). It returns to step S110.

[0094] There is no input at step S110. If the printer status changes from "those with a printed document" to "it is normal" like drawing 28, since JOB which can be performed exists at step S112, it progresses to step S113. JOB which can be performed at step S113: Acquire reexamination of JOB corresponding to those with a printed document. At step S114, it is understood that the object of reexamination of JOB corresponding to those with a printed document is deleting JOB which became unnecessary. It determines to delete JOB which is waiting for a user's response at step S115. JOB which is waiting for a user's response is deleted at step S119. Here, new JOB is not added. By the initial state, it returns to step S110.

[0095] Drawing 36 and 37 are drawings showing the rule of a plan and action.

[0096] A user is printing of drawing 20 . Window When it sets and a carbon button [printing] is pushed, with reference to plan & action of the table of drawing 36 , it is judged that a user's object is that the present condition becomes "those with a printed document." Furthermore, since "those with a printed document" is also the target "printed document acquisition" prerequisite, it is judged that a final user's object is "printed document acquisition."

[0097] A user is the question of drawing 24 or drawing 33 . When voice, mouse actuation, etc. perform actuation of approval manifestation or anti-mind manifestation to the inquiry by Window and the telephone of drawing 27 , it is judged that a user's objects are the approval manifestation to an inquiry and anti-mind manifestation.

[0098] In drawing 37 , the ultimate object of a system is the object achievement of a user. As a prerequisite for that, the system must be stable. Moreover, a system understands ** user's object on it, and the ** object achievement is planned and it performs.

[0099] As well as normalizing a system at the time of trouble, for the cutback of cost, or evasion of destabilization of a system, when there is no need of performing, a power source is turned off for stability of a system.

[0100] Drawing 38 illustrates a part of drawing 37 intelligibly.

[0101] In order to understand a user's object, he understands an input, when there is an input. Moreover, corresponding to "printed document acquisition" of the object of the user of drawing 36 , what "a printed document is passed to a user for" exists as an object of a system.

[0102] In order to pass a user a printed document, it is a premise that the printed document exists and it is going to attain the object by teaching a user the location which has a document on it. Of course, although a user comes a document to picking or a document must be sent to a user by a certain approach in order for a user to acquire a document actually, in this system, in detail, the definition was not carried out but that a printed document is lost has judged that it is equivalent to the user having acquired.

[0103] On the other hand, in order for there to be a printed document, while there is a printing agency document, printing conditions are clarified, it is a premise that the printing environment where it corresponds exists normally, the printing environment where it corresponds on it is chosen, and printing is performed. What is necessary is just to draw up a printing agency document, in order for there to be a printing agency document. In order to clarify printing conditions, conditions should just ask a user an indefinite part. What is necessary is just to normalize a printing environment, when a printing environment is unusual in order for the printing environment to be normal. Moreover, RIPURANNINGU anew when there is no response from a fixed time amount user in order to acquire a user's volition.

[0104] The property of each device is stored in the memory in the server which has managed the memory or each device inside each device. Drawing 39 is the example of the property of each device. The status of each device is having in the interior of each device, and each device's sending actively, or returning passively according to the demand of other servers etc., and is told to other equipments.
[0105] In this system, a property is the thing of each device proper, and since it does not change, when the connection on the time of starting of a system or a network has modification, it is acquired. On the other hand, in the process which plans, the status is acquired if needed, or is acquired with a certain fixed time interval, and updating storage is carried out as information in internal memory.
[0106] [Operation gestalt 12] As well as the operation gestalt 11, when printing <file A>, it is the example of processing in case a color printer is Busy.
[0107] First, input: If there is "printing <file A>", this will be added to a JOB table and it will be understood that the object is printing. here, the part of a color contains in a document as a condition and a situation — having — **** — an usable color printer — Busy it is — ** — it carries out. Then, the plan to ask a user whether it waits or it prints in monochrome is stood until it stops being Busy. "Color printer is Busy. is it waiting measure? Or does it print by the monochrome printer? " — a user is questioned. A user When "it waits" is chosen, it stands by until it stops being Busy.
[0108] [Operation gestalt 13]
Input: "<file A> was changed into <file A'>. When there is ", it is understood that renewal of a JOB table is the object. In a condition and a situation, <file A> prints on a JOB table. JOB It is. Then, it asks a user whether the object for printing is changed into <file A'>. The plan to say is stood. And the question "whether <file A'> is printed instead of <file A> before correction" is emitted.
[0109] [Operation gestalt 14] In the system (in this case, it connects with the network) to which, as for this operation gestalt, two or more equipments were connected When JOB is directed to each equipment, each equipment analyzes the object of JOB, and when it judges that it is better not to perform JOB activation with the equipment directed from its situation or the situation of a designating device, it is an operation gestalt for transmitting and performing JOB to other equipments.
[0110] Drawing 41 is two examples showing the condition that two or more equipments are connected to the network, and (A) is the network of the environment where each equipment of a scanner 411 and printers 412 and 413 can judge each situation. (B) is the network of the environment where a scanner 411 cannot judge the situation of printers 412 and 413.
[0111] Drawing 42 is drawing showing the functional configuration for processing this operation gestalt. The JOB receipt section 421 receives JOB from a user or other equipments. Received JOB is registered into the JOB table 422. The JOB analysis section 423 takes out and analyzes JOB registered into the JOB table 422. The other equipment situation seal step 424 judges an attribute, a current condition, etc. of other connected equipments. The self-equipment situation seal step 427 judges the own attribute, own current condition, etc. of equipment.
[0112] The optimal planning section 425 stands the optimal plan about activation of JOB. In the JOB activation decision section 426, when performing whether JOB is performed or not, it judges performing with other equipments whether it performs with self-equipment etc. When performing with self-equipment, it performs in the JOB activation section 428. When performing with other equipments, JOB is transmitted to other devices by the JOB transfer section 429 to other equipments. The advice section 211 of activation notifies a user of having transmitted JOB to an activation result or other equipments etc.
[0113] Drawing 43 is the flow chart showing the flow of the processing for realizing this operation gestalt of Maine. First, at step S430, it judges whether JOB was inputted by confirming whether there is new JOB generated by itself at the input JOB from the input JOB from a user, the device which can detect a system, the result of having analyzed these JOB(s), and the time of an idling. If inputted, JOB inputted into the JOB table will be added at step S431. If it investigates whether there is JOB on a JOB table and is shown in it at step S432, JOB will be

taken out at step S433. At step S434, the given directions are analyzed and the object of JOB is analyzed from the information. At step S435, it judges whether there is JOB to other equipments, and if it is, other equipments will be controlled by step S436. If there is nothing, self-equipment will be controlled by step S437.
[0114] Drawing 44 is a flow chart showing the flow of the processing when controlling other equipments, when processing to other equipments in the Maine processing at step S436.
[0115] The situation of the equipment specified in JOB is judged at step S440, and it judges whether a problem is to perform JOB with the specified equipment at step S441 based on this decision. If satisfactory, JOB will be transmitted to the specified equipment at step S442. The situation will be judged, if it investigates whether there is any equipment suitable for the JOB and is with equipments other than the specified equipment at step S443, when a problem is in activation with the specified equipment. Consequently, if there is equipment which can perform the JOB except the specified equipment, a user will be notified of having transmitted JOB to the equipment and having transmitted JOB at step S446 at step S445. The optimal plan which is step S447 and does not spoil the object of JOB with any equipments other than the specified equipment on the other hand when current utilization cannot be carried out, even if there is no equipment suitable for the JOB or it is is stood, it is step S448 and the plan is proposed to a user.
[0116] Drawing 45 is a flow chart which expresses the flow of processing in the case of processing with its own equipment with step S437 in the Maine processing.
[0117] At step S450, the situation of self-equipment is judged and it judges whether a problem is to perform JOB with self-equipment by step S451 based on this decision. If satisfactory, JOB will be performed at step S452. The situation will be judged, if it investigates whether there is any equipment suitable for the JOB and is with equipments other than self-equipment at step S453, when a problem is in activation with self-equipment. Consequently, if there is equipment which can perform the JOB except self-equipment, a user will be notified of having transmitted JOB to the equipment and having transmitted JOB at step S446 at step S445. The optimal plan which is step S447 and does not spoil the object of JOB with any equipments other than self-equipment on the other hand when current utilization cannot be carried out, even if there is no equipment suitable for the JOB or it is is stood, it is step S448 and the plan is proposed to a user.
[0118] In (A) of drawing 41 , it pointed so that the information read from the scanner 411 might be outputted to a printer 412 in the path of A, but in the other equipment situation seal step 424 of a scanner 411, since drawing 46 discovered failure to the printer 412, it is drawing when outputting to a printer 413 through the path of B.
[0119] Although it points to drawing 47 so that the information read from the scanner 411 may be outputted to a printer 412 in the path of A in (B) of drawing 41 , and a scanner 411 tends to check the situation of a printer 412 Since it is in the distant location, in consideration of a network situation, information is transmitted unconditionally, and it is drawing since he is out of order, when a printer 412 transmits the received information (JOB) to a printer 413 in the path of B.
[0120] Drawing 46 and the process in which processing of 47 is performed are explained based on the flow chart of drawing 43 -45 below.
[0121] When an output JOB occurs from the scanner 411 of drawing 46 to a printer 412, processing of a scanner 411 is as follows.
[0122] First, at step S430, information is scanned and JOB which transmits information to a printer 412 is received. At step S431, JOB is added to a JOB table. JOB is taken out at step S433. At step S434, he scans data and understands that this JOB is JOB which transmits to the directed printer. It judges that there is JOB which performs information which he scanned with other equipments of outputting by the printer 412 at step S435. By this decision, processing is passed to other device control processing of drawing 44 at step S436.
[0123] The current condition of the directed printer 412 is acquired at step S440. Consequently, it judges that an output is impossible at a receipt and step S441 in the information which is breaking down from a printer 412. In this case, also when it is in the condition that outputs, such

as a form piece and a toner piece, cannot be performed even if it is not [be / it] under failure for example, it thinks. At step S443, since it is impossible to perform JOB, from on a network, communication is taken and other same equipments which can perform JOB are searched with the printer 412 which is directed equipment. Since the printer 413 which can perform JOB was discovered at step S444, it opts for activation of JOB in a printer 413.

[0124] At step S445, the scanned information is transmitted to a printer 413. It notifies having changed JOB at step S446, to the partner who directed, since the thing except having been directed was performed. Since processing of directed JOB was ended above, it waits until the next JOB is inputted.

[0125] Next, processing when an output JOB occurs from the scanner 411 of drawing 47 to a printer 412 is explained.

[0126] With a scanner 411, at step S430, information is scanned and JOB which transmits information to a printer 412 is received. At step S431, JOB is added to a JOB table, and JOB is taken out at step S433. At step S434, he scans data and understands that this JOB is JOB which transmits to the directed printer. It judges that there is JOB which performs information which he scanned to other equipments of outputting by the printer 412, at step S435. By this decision, processing is passed to other device control processing of drawing 44 at step S436.

[0127] Although it is going to communicate with the directed printer 412 and is going to get to know the situation at step S440, since it is checked that it is in the location which the printer 412 left, it judges transmitting information regardless of the condition of a printer 412. At step S441, since the printer 412 is separated, it is judged as a satisfactory thing. At step S442, the information scanned to the printer 412 which is directed equipment is transmitted, and JOB is passed. Since processing of directed JOB was ended above, it waits until the next JOB is inputted.

[0128] On the other hand, by the printer 412, JOB which outputs the received information at step S430 is received. At step S431, JOB is added to a JOB table. JOB is taken out at step S433. He understands that it is JOB to which he outputs the received information at step S434. At step S435, it is judged that there is no JOB to other equipments. Processing is passed to self-device control processing of drawing 45 at step S437.

[0129] Its current condition is seen at step S450. At step S451, he judges that it is [current] under failure and activation of JOB cannot be performed. In this case, also when it is in the condition that outputs, such as a form piece and a toner piece, cannot be performed even if it is not [be / it] under failure for example, it thinks. Communication is taken from on a network and the same equipments of other as themselves which can perform JOB are searched with step S453.

[0130] Since the printer 413 which can perform JOB was discovered at step S454, it opts for activation of JOB in a printer 413. At step S455, the information transmitted to the printer 412 is broadcast again to a printer 413. It notifies having changed JOB at step S456, to the partner who directed, since processing except having been directed was performed. Here, although the partner who directed was notified, since it is the location distant from the partner whom the output destination change directed, it may be made to notify to a recipient. Since processing of JOB directed above was ended, it waits until the next JOB is inputted. A printer 413 does not have a problem, and since JOB which outputs the received information can be performed, JOB is performed.

[0131] Although each equipment transmitted JOB automatically with the above operation gestalt, when a problem is in each equipment, it is also possible to attach and set up ranking so that a user may transmit JOB. For example, in this operation gestalt, although the user has inputted printing by the printer which specified the scanned document as JOB, when the printer specified at this time is unusable, the 2nd and 3rd printer which executes printing by proxy may be simultaneously set up into JOB. Thereby, as a device which fitted JOB in step s443 or step s453, the 2nd and 3rd set-up printer is chosen and the situation is judged. Moreover, when he is unusable, the 2nd and 3rd printer which executes printing by proxy may be set to the printer side which receives JOB conversely. At this time, though the 2nd and 3rd printer is set up by the JOB itself as mentioned above, the printer which received JOB can transmit JOB according to

the assignment set as itself.
[0132] Moreover, when failure and actuation are impossible, even if it is except, when JOB of the spec. unsuitable for performing JOB, for example, a monochrome printer, is printing of the information on a color, or also when there is much waiting for JOB and it cannot process immediately, it can become the decision conditions which do not perform JOB.
[0133] [Operation gestalt 15] In performing JOB which outputs the emergency intelligence which the printer received to a user, this operation gestalt expresses the processing in the case of also considering the target user's schedule information as a decision ingredient which judges the problem of activation of JOB in the processing which judges the situation of the self-equipment of step S450 of drawing 45 .
[0134] Here, the user who should tell emergency intelligence is out and processing of the environment shown in drawing 48 in which the printer 413 connected to the going-out place in the network exists is explained.
[0135] In this case, in the procedure of drawing 43 , the object of JOB understands that it is connecting the received information to a user immediately at step S434. At step S435, since it is not JOB to other equipments at this event, processing is passed to step S437. Processing is passed to self-device control processing of drawing 45 at step S437.
[0136] At step S450, when judging the situation of self-equipment, a user's schedule directed as a transmission place is checked to equipment 414, and it is judged that he is out. At step S451, since a user is going out [be / it], for urgent communication, it is judged that a problem is in activation with self-equipment. It checks whether at step S453, the printer in which an output of information is possible is in a going-out place. Since it checked that there was a printer 412 in which an output is possible at step S454, it determines to output by the printer. At step S455, information is transmitted to a printer 412. At step S456, the user of the destination is notified of having transmitted JOB delivery origin.
[0137] Moreover, when it is judged that there are other equipments which a user uses, for example, PC, FAX, a telephone, etc. at step S443 by the case where there is no equipment in which the output same as the destination of JOB is possible, it is good though performed with the equipment in step S444. However, since information cannot be transmitted as it is, at step S445, the print-out to a printer is changed, and will make it an electronic mail document and a FAX document, and it will transmit, or will change and output to speech information.
[0138] It is not necessary to notify having transmitted JOB anew using another media depending on the media used for an output, and can also tell simultaneously by the same media at step S446 at this time. For example, when transmitting a print-out using a telephone, the rear stirrup which told the print-out is considered as it is more smart to tell the data of having transmitted before.
[0139] In addition, it is step S447 and determines to use those equipments as optimal plan which does not spoil the object of JOB, and it is step S448 and you may make it propose the plan, without judging PC mentioned above, FAX, a telephone, etc. to be the devices suitable for JOB which should be performed by the printer at step S443.
[0140] [Operation gestalt 16] The procedure of this operation gestalt is shown in drawing 49 . Drawing 49 adds step S498-500 as processing when there is no JOB in the flow chart of drawing 43 . At step S498, by step S499, the current situation of other equipments of operation is investigated, and it judges whether others and equipment are covered with, without performing JOB which can be performed by itself, and when having collected, at step S500, the JOB is taken out, and it adds to the JOB table of self-equipment, and deletes from the JOB table of partner equipment. Thus, with this operation gestalt, JOB is found out and processed itself.
[0141] Drawing 50 is in the situation of performing this processing, and since JOB does not exist in a printer 412 but the printer 413 has ten waiting JOB(s), it is drawing showing the concept which a printer 415 takes out JOB of a printer 413 and processes with self-equipment.
[0142] The flow of processing of a printer 415 is as follows. At step S492, since there is no JOB, it passes processing to step S498. At step S498, the current situation of the printer 412 which are other equipments, and a printer 413 is investigated. It judges that JOB which can be performed by itself is in a printer 413 at step S499. At step S500, the JOB is added to ejection

and its own JOB table from a printer 413. Furthermore, taken-out JOB is deleted from a printer 413. There is no input of JOB at step S490. Since JOB which added the point by itself exists at step S492, processing is passed to step S493 in order to perform JOB.
[0143] Henceforth, actuation for performing with one's equipment explained with the operation gestalten 14 and 15 is performed, and processing is ended.
[0144] [Operation gestalt 17] Drawing 51 is drawing having shown the flow of Print JOB in the system which used the equipment of this operation gestalt, and other information flows. In addition, the thick arrow head in drawing expresses the flow of Print JOB, and the arrow head of a dotted line expresses other information flows.
[0145] However, the parameters referred to at the time of printing of the document used as the object for printing and printing number of sheets, printing quality, printing size, etc. are included in the print JOB stated with this operation gestalt. Moreover, there are the statuses, such as normal and those without a form, and a schedule of the print JOB which the print JOB scheduling section has in the information on other during printing which each printer has.
[0146] In drawing 51 , with a client machine 510, once creating Print JOB in the print JOB creation section 512 and memorizing in the print JOB storage section 513, it is transmitted to the server machine 511 which manages a printer by the print JOB transmitting section 514 from the client machine 510 which created Print JOB.
[0147] In a server machine 511, when the parameters of reception and Print JOB have not set up the sent print JOB by the print JOB receive section 516, the print JOB automatic setting section 517 is passed, and delivery and when already being set up, the print JOB automatic modification section 518 is passed.
[0148] A non-set up printing parameter is set up in the print JOB automatic setting section 517, taking into consideration the urgency acquired from Print JOB, profitability, quality, etc. On the other hand, in the print JOB automatic modification section 518, changing the parameter already set up in the same processing is also realized. Thus, the print JOB set up or changed is registered into the schedule of the print JOB which the print JOB scheduling section 520 has, and reading appearance is carried out from there to the sequential print JOB transmitting section 519, or it is printed over the immediate printing JOB transmitting section 519.
[0149] Here, the status of usable printers acquired through the printer situation-recognition section 515, such as under printing, normal, and those without a form, includes the print JOB automatic setting section 517 and the print JOB automatic modification section 518, and it is used for them in setting out or modification of Print JOB. Moreover, the printing schedule of the print JOB which the print JOB scheduling section 520 has is gone across and used similarly.
[0150] Moreover, as expressed to drawing 51 , it is also assumed that Print JOB flows in a different path. For example, when the machine which has managed the printer is the same as the machine which created Print JOB, it cannot pass along the print JOB transmitting section 514.
[0151] Drawing 52 is a flow chart showing the flow of processing of the print JOB automatic setting section 517. Automatic setting of the parameter is carried out so that it can print as quickly as possible and as economically as possible in the range which is satisfied with the print JOB automatic setting section 517 of the specified quality.
[0152] At drawing 52 , the factor which determines printing time amount and the amount of the toner used is first initialized as preparation of a simulation at step S520. Then, a quality decision variable is initialized by the quality peak price (for example, 5) at step S521, and printing time amount is simulated at step S522. It judges whether the printing time amount which it simulated fills an assignment value with step S523. When filled, it is step S524 and the amount of the toner used is simulated. It judges whether the amount of the toner used which it simulated fills an assignment value with step S525. When filled, it is step S526 and JOB is changed into the value of a current quality decision variable.
[0153] Step S When not filling the specified value with 523 or 525, one quality decision variable is reduced at step S527. Whether the specified quality is filled with step S528 judges, and if filled, processing will be returned to step S522. If not filled, it becomes an automatic setting impossible error and ends.
[0154] Drawing 53 is drawing showing the printing time amount and the amount of the toner used

of per [used] character by the difference in the assignment quality of a printer A521 and a printer B522. The eternal value of each printer proper is sufficient as these values, and the value which measures the business time amount and the amount of the toner used of printing used performed in the past, and took the average from this measured value and which changes dynamically is sufficient as them.

[0155] Drawing 54 is drawing showing the parameter which the user specified as the content of the print JOB printed with this operation gestalt. In the system using this operation gestalt, it is called Print JOB in accordance with the content of the print JOB expressed with drawing 54 , and the active parameter. With this operation gestalt, in order to simulate printing time amount and the amount of the toner used, the amount of printings of Print JOB is explained as 500 characters by the number conversion of alphabetic characters. Moreover, the user should specify only urgency as less than 1 minute, and neither profitability nor quality should be specified with the default.

[0156] In the example of drawing 54 , starting of the print JOB automatic setting section 517 initializes the factor which determines printing time amount and the amount of the toner used in preparation of a simulation of step S520 first. For example, as it was defined as the table of drawing 53 , each printing time amount per character in the case of the minimum quality (= 1) of a printer A521 and a printer B522 is the an average of 100m step S and the 200m step S, and the amount of the toner used per character is an average of 100mg and 200mg.

[0157] Then, a quality decision variable is initialized by the quality peak price (for example, 5) at step S521, and printing time amount is simulated at step S522. For example, if one does not have the print JOB by which can print and the schedule is carried out by print JOB scheduling, printing can be started immediately and the latency time of a printer A521 and a printer B522 is unnecessary. Therefore, when 500 characters are contained in the print JOB for printing, by Printer A, it takes 250 seconds, and if it takes 500 seconds, it will simulate by Printer B.

[0158] Then, since less than [urgency 1 minute] which was specified with the assignment parameter of drawing 54 cannot be filled with step S523, one quality decision variable is reduced at step S527. Here, since quality is not specified with the assignment parameter of drawing 54 , processing is again returned to the simulation of the printing time amount of step S522. Since printing time amount becomes 50 seconds by the printer A521 only after quality is set to 1 of the minimum quality as a result of repeating these processings, and urgency is fulfilled, quality is set as the value (= 1) of a quality decision variable, and is terminated normally.

[0159] Here, since the parameter which the user set up cannot be filled supposing it has set quality or more to two, it becomes an automatic setting impossible error and ends.

[0160] [Operation gestalt 18] Drawing 55 is a flow chart showing the flow of processing of the print JOB automatic modification section 518. In the range which is satisfied with the print JOB automatic modification section 518 of the urgency and profitability which were specified, an automatic change of the parameter is made so that it can print for high quality as much as possible. When it cannot be satisfied with on top of that of all assignment, assignment of the highest priority is satisfied, and other assignment is changed so that closely [assignment] as much as possible.

[0161] Drawing 56 is drawing showing the parameter which the user specified as the content of the print JOB printed with this operation gestalt. In the system using this operation gestalt, it is called the content of the print JOB expressed with drawing 56 with Print JOB in accordance with the active parameter. With this operation gestalt, in order to simulate printing time amount and the amount of the toner used, the amount of printings of Print JOB is explained as 500 characters by the number conversion of alphabetic characters. Moreover, although the user set up all the parameters, it is specified also in it that quality is top priority.

[0162] In drawing 55 , starting of the print JOB automatic modification section 518 first initializes the factor which determines printing time amount and the amount of the toner used in preparation of a simulation at step S550. For example, as it was defined as the table of drawing 53 , each printing time amount per character in the case of the minimum quality (= 1) of Printer A and Printer B is the an average of 100m step S and the 200m step S, and the amount of the toner used per character is an average of 100mg and 200mg.

[0163] Then, a quality decision variable is initialized by the quality peak price (for example, 5) at step S551, and printing time amount is simulated at step S552. For example, if one does not have the print JOB by which can print and the schedule is carried out in the print JOB scheduling section 520, printing can be started immediately and the latency time of a printer A521 and a printer B522 is unnecessary. Therefore, when 500 characters are contained in the print JOB for printing, by the printer A521, it takes 250 seconds, and if it takes 500 seconds, it will simulate by the printer B522.
[0164] Then, since less than [urgency 1 minute] which was specified with the assignment parameter of drawing 56 cannot be filled with step S553, one quality decision variable is reduced at step S556. Since assignment of the quality of the assignment parameter of drawing 56 is filled with step S557, processing is again returned to the simulation of the printing time amount of step S552. As a result of repeating these processings, even if it becomes the quality (= 3) specified by a user, printing time amount is 150 seconds by the printer A521, and cannot fulfill urgency. Then, if a quality decision variable is reduced by one, since it becomes impossible to fill the quality specified by a user with step S557, it progresses to step S558, and quality will have it confirmed whether to be an assignment parameter of the highest priority, and will change and terminate Print JOB normally with step S556 in the specified quality by step S560 the case of the highest priority.
[0165] Here, since printing time amount will become 50 seconds by Printer A only after quality is set to 1 of the minimum quality and urgency will be fulfilled supposing urgency is top priority, quality is set as the value (= 1) of a quality decision variable, and is terminated normally.
[0166] [Operation gestalt 19] Drawing 57 is drawing having shown the flow of Print JOB in the system which used the equipment of this operation gestalt, and other information flows. In addition, the thick arrow head in drawing expresses the flow of Print JOB, and the arrow head of a dotted line expresses other information flows.
[0167] However, the parameters referred to at the time of printing of the document used as the object for printing and printing number of sheets, printing quality, printing size, etc. are included in the print JOB stated with this operation gestalt. Moreover, there are the statuses, such as normal and those without a form, and a schedule of the print JOB which print JOB scheduling has in the information on other during printing which each printer has.
[0168] In drawing 57 , with a client machine 510, once creating Print JOB in the print JOB creation section 512 and memorizing in the print JOB storage section 513, it is transmitted to the server machine 511 which manages a printer by the print JOB transmitting section 514 from the client machine 510 which created Print JOB.
[0169] In a server machine 511, the sent print JOB is passed to reception and the print JOB interpretation section 571 by the print JOB receive section 516. In the print JOB interpretation section 571, the directions from a user included in the received print JOB are interpreted, and it changes into information, such as a parameter which can process a system. When the parameters of Print JOB have not been set up, the print JOB automatic setting section 517 is passed, and delivery and when already being set up, the print JOB automatic modification section 518 is passed.
[0170] A non-set up printing parameter is set up in the print JOB automatic setting section 517, taking into consideration the urgency acquired from Print JOB, profitability, quality, etc. On the other hand, in the print JOB automatic modification section 518, changing the parameter already set up in the same processing is also realized. Thus, the print JOB set up or changed is registered into the schedule of the print JOB which the print JOB scheduling section 520 has, and reading appearance is carried out from there to the sequential print JOB transmitting section 519, or it is printed over the immediate printing JOB transmitting section.
[0171] Here, the status of usable printers, such as normal and those without a form, includes the print JOB automatic setting section and the print JOB automatic modification section 518 during printing acquired through the printer situation-recognition section 515, and it is used for them in setting out or modification of Print JOB. Moreover, the printing schedule of the print JOB which the print JOB scheduling section 520 has similarly is also gone across and used.
[0172] Moreover, as expressed to drawing 57 , it is also assumed that Print JOB flows in a

different path. For example, when the machine which has managed the printer is the same as the machine which created Print JOB, it cannot pass along the print JOB transmitting section 514.
[0173] With this operation gestalt, as shown in drawing 58 , setting out of the parameter of Print JOB is vaguely set up using natural language. Drawing 130 is drawing having shown the semantics which the character string in a parameter setup expresses, and a demand item required in order to complete the semantics corresponding to the input string by natural language. In the print JOB interpretation section 571, it interprets as follows with reference to the semantics corresponding to the input string by the natural language which showed directions by the natural language passed as a print JOB active parameter in drawing 130 , and a demand item required in order to complete semantics.
[0174] Action used as a user's object which a character string "printing" to this character string under inputted natural language means is [printing]. Furthermore, the item demanded from there and a [object] are the contents of the print JOB inputted simultaneously itself, and [quality] and [number of sheets] will be expected if it should be specified in the part as which it is not interpreted under inputted natural language. then, a character string — "— the object for customers — an interpretation of one sheet and five-sheet" for members understands being specified that [number-of-sheets] 1 sheet is printed in high-definition [quality], and it prints [number-of-sheets] 5 sheet in free [quality].
[0175] Processing of the print JOB automatic setting section 517 and the print JOB automatic modification section 518 after this is the same as that of the operation gestalten 17 and 18.
[0176] [Operation gestalt 20] With this operation gestalt, as shown in drawing 59 , setting out of the parameter of Print JOB is performed based on the distribution place and number of sheets which were indicated by the document itself which is the content of the print JOB. In the print JOB interpretation section 571, the content of the print JOB is interpreted and it operates as follows. Action is printing. "The object for customers" interprets it as high-definition, and makes number of sheets one sheet. An "ABC project" is "an object for members", interprets it as grace being free, and number of sheets makes it five sheets (it has in advance the information that a user is the member of an ABC project.).
[0177] The processing after the print JOB automatic setting section 517 and the print JOB automatic modification section 518 after this is the same as that of the operation gestalten 17 and 18.
[0178] [Operation gestalt 21] Drawing 60 is drawing having shown the flow of Print JOB in the system which used the equipment of this operation gestalt, and other information flows. In addition, the thick arrow head in drawing expresses the flow of Print JOB, and the arrow head of a dotted line expresses other information flows.
[0179] However, the parameters referred to at the time of printing of the document used as the object for printing and printing number of sheets, printing quality, printing size, etc. are included in the print JOB stated with this operation gestalt. Moreover, there are the statuses, such as normal and those without a form, and a schedule of the print JOB which the print JOB scheduling section 520 has in the information on other during printing which each printer has.
[0180] In drawing 60 , with a client machine 510, once creating Print JOB in the print JOB creation section 512 and memorizing in the print JOB storage section 513, it is transmitted to the server machine 511 which manages a printer by the print JOB transmitting section 514 from the client machine 510 which created Print JOB.
[0181] In a server machine 511, the sent print JOB is passed to reception and the print JOB interpretation section 571 by the print JOB receive section 516. In the print JOB interpretation section 571, the directions from a user included in the received print JOB are interpreted, and it changes into information, such as a parameter which can process a system. When the parameters of Print JOB have not been set up, the print JOB automatic setting section 517 is passed, and delivery and when already being set up, the print JOB automatic modification section 518 is passed. Moreover, in the print JOB simulation section 601, printing by setting out specified on Print JOB is simulated, and printing time amount and the amount of the toner used are calculated.
[0182] A non-set up printing parameter is set up in the print JOB automatic setting section 517,

taking into consideration the urgency acquired from Print JOB, profitability, quality, etc. On the other hand, in the print JOB automatic modification section 518, changing the parameter already set up in the same processing is also realized. Thus, the print JOB set up or changed is registered into the schedule of the print JOB which the print JOB scheduling section 520 has, and reading appearance is carried out from there to the sequential print JOB transmitting section 519, or it is printed over the immediate printing JOB transmitting section 519.
[0183] Here, the status of usable printers, such as normal and those without a form, includes the print JOB automatic setting section 517 and the print JOB automatic modification section 518 during printing acquired through the printer situation-recognition section 515, and it is used for them in setting out or modification of Print JOB. Moreover, the printing schedule of the print JOB which the print JOB scheduling section 520 has similarly is also gone across and used.
[0184] Moreover, as expressed to drawing 60 , it is also assumed that Print JOB flows in a different path. For example, when the machine which has managed the printer is the same as the machine which created Print JOB, it may not pass along the print JOB transmitting section 514.
[0185] Drawing 61 is the flow chart of processing by the print JOB simulation section 601. In the print JOB simulation section 601, the factor which determines printing time amount and the amount of the toner used is first initialized as preparation of a simulation at step S611. At step S612, the printing time amount in setting out specified on Print JOB is simulated, the amount of the toner used in setting out specified on Print JOB by step S613 is simulated, and printing time amount and the amount of the toner used are calculated.
[0186] The concrete approach is the same as that of what was explained with the operation gestalten 17 and 18.
[0187] [Operation gestalt 22] With this operation gestalt, two or more output trays are prepared in a printer, and the tray outputted according to a user is chosen.
[0188] Drawing 62 is the flow chart of the procedure of the printer system of this operation gestalt. A printer system starts processing of drawing 62 , after processing the response at the time of receiving two or more prints JOB simultaneously etc., if Print JOB is received.
[0189] The external view of the printer of the printer system of this operation gestalt is shown in drawing 63 . As shown in this drawing, these printers 631 and 632 have two or more output trays, have the screen which indicates whose document the document on that tray is in each output tray by the printer 631, and express whose document is shown in a common screen at which output tray as a printer 632. Moreover, if the user is beforehand set up for every output tray, it becomes an output tray only for users, and if it does not set up especially, the user of each output tray will change if needed.
[0190] Functions, such as telling the failure of a printed document which tells arrival of a document and which tells termination of printing taking by this system (the sensor sticking), are realized. The flow of the above processing is explained.
[0191] In drawing 62 , receiver's address information is acquired from the information included in Print JOB at step S621. Receiver's address information is acquired by interpreting the assignment filled in as the operation gestalt 29 explaining into the content of the print JOB, or is acquired from the information set up apart from the content of the print JOB from the beginning like E-mail. When using it, usually carrying out like [instead of FAX or E-mail] like [although the receiver's address is not specified] the system using this operation gestalt in using a printer as an output device of the usual personal computer like the example of an activity of the conventional technique at this time, usually the receiver's address is specified as reverse. At step S622, it is confirmed whether the receiver's address is specified. At step S623, the man of the receiver's address is notified of the document having arrived. At step S624, sending agency information is acquired from the information included in Print JOB. Sending agency information is acquired by interpreting the assignment filled in as the operation gestalt 29 explaining into the content of the print JOB, or is acquired from the information set up apart from the content of the print JOB from the beginning like E-mail. When using it, usually carrying out like [instead of FAX] like [although a sending agency is in the management range of this system] the system using this operation gestalt in using a printer as an output device of the usual personal computer like before at this time, as for sending-conversely origin, it is common that there is nothing in

the management range. At step S625, it is confirmed whether a sending agency is in the management range. At step S626, when the receiver's address is specified, an output tray is chosen corresponding to the receiver's address. When the receiver's address is not specified but only the sending agency is specified, an output tray is chosen corresponding to a sending agency. As shown in (a) of drawing 63 R> 3, the information on receiver's address or sending origin is expressed on a corresponding output tray as step S627. Or as shown in (b) of drawing 63 , the information on receiver's address or sending origin and the location of an output tray are displayed on a common-display screen. If the user is beforehand set up for every output tray at this time, it becomes an output tray only for users, and if it does not set up especially, the user of each output tray will change if needed.

[0192] Printing is performed at step S628. It is confirmed whether, at step S629, a sending agency is in the management range by completing printing. At step S630, it notifies that printing was completed to a sending agency. It is confirmed whether at step S631, a fixed time amount document remains and a sending agency is in the management range. At step S632, it notifies that the printed document remains in the sending agency for a long time.

[0193] [Operation gestalt 23] The information about time amount is dealt with with this operation gestalt. Drawing 65 is drawing showing the functional configuration of the system of this operation gestalt. The processing section 650 was equipped with the understanding section 652, the planning section 653, the activation section 654, the response section 655, and the knowledge base 656, and has connected with a database 651.

[0194] Drawing 64 is the flow of overall processing of this operation gestalt, and flow-chart-izes procedure in the functional configuration of drawing 65 .

[0195] At step S640, it investigates whether there is any input from the outside, and if it is, he will analyze the text inputted by the understanding section 652 at step S641 with reference to the knowledge base 656 per a word or sentence, and will analyze and understand the object of the content of an input by step S643 further. If it judges whether information required for the target understanding is insufficient and there is lack at step S644, it will ask to a user at step S645, the reply from a user will be learned to the knowledge base 656, and it will return to step S643. If there is no lack, it will progress to step S646. Moreover, at step S640, if there is no input, the work which should be performed will be found out by step S642, and it progresses to step S646.

[0196] At step S646, the planning section 653 performs the planning for attaining the object. At step S647, if it judges whether information required for a planning is insufficient and there is lack, it will ask to a user at step S648, the reply from a user will be learned to the knowledge base 656, and it will return to step S646. If there is no lack, a plan will be performed by the activation section 654 at step S649. At this time, if needed, a database 651 is accessed or the activation section 654 communicates with other applications. And the content is determined when judging whether a response should be performed at step S650 by the response section 655. Furthermore, at step S651, the response corresponding to the determined content is created and a user is answered.

[0197] if , when it have recognize to the information inputted from the outside , for example , a keyboard entry , voice input , E-mail and FAX , news information , etc. , the understanding section 652 analyze the content , analyze a time concept from the language in a text , and it understand the content of the text which have involvement in time amount .

[0198] Drawing 67 is drawing showing the example which extracts schedule information from an electronic mail. Above-mentioned processing analyzes the content of the document received by E-mail, as specifically shown in drawing 67 . The time concept of "February 22", "13:30", and "15:00" is found out and analyzed, and the patent system explanation meeting is planned in B conference room from [which has involvement in this concept / text "/ on February 22] 13:30 to 15:00. " — by understanding, it becomes possible to match the action relevant to time amount with a schedule.

[0199] Moreover, the time concept and current time which were analyzed are compared, if it is the time of day of the future, the action will be registered into a schedule, if it is description about the past time of day, without registering with a schedule, it will cancel or an individual

database etc. will be registered as information on classes other than a schedule as record of the past occurrence.
[0200] Moreover, the information as which the understanding section 652 was inputted from the outside, for example, keyboard entry, The contents, such as voice input, E-mail and FAX, and news information, are analyzed. When a plan without the language (a word, concept, etc.) which a system does not know yet in the language in a text, or having performed etc. is discovered When there is no urgency in the language and plan, it learns by finding the information in connection with the language and plan one by one, and stores in the knowledge base 656 as information.
[0201] It is memorizing something that is called XYZ existing, when the language which is not known "XYZ" comes out, and then specifically analyzing the text XYZ's being "dramatically delicious", "XYZ's being hard", etc., and XYZ is hard and delicious food. It learns.
[0202] If a user understands it as the plan at the time of an absence from the situation at that time, for example when the first plan is directed also about a plan, it will learn as an example of how to stand the plan at the time of a user absence.
[0203] Furthermore, the system which is reporting the action and the plan which the system performed to the user each time when the information in connection with a user is acquired from news etc. is received. It is not necessary to carry out a report of this information from a degree. a user — a report — the carrier beam time — "— By taking out directions with the natural language " etc. to a system, a system can also be learned so that the information may not be reported.
[0204] As mentioned above, in this system, the content of the information inputted from the outside is analyzed in the understanding section 652, the object is analyzed, and in order to attain the object in the planning section 653, the plan of the action which a system must perform is stood. And processing is performed in the activation section 654. Moreover, the response section 655 informs a user of the performed processing.
[0205] For example, when it is understood in an individual database from the addresser's information at a carrier beam case that E-mail which is shown in drawing 67 is mail from a non-registered partner, the information about the man is extracted from e-mail, and it registers with the individual database of a database 651. Furthermore, also when the information about a non-registered person is in an individual database in addition to it, you may make it register with an individual database.
[0206] Moreover, by understanding that e-mail is advice of an explanation meeting, it accesses at the schedule of the user of a database 651, and time amount with the existing schedule data is matched. When there were no problems, such as a collision with the existing schedule data, in new schedule data and a problem is discovered as drawing 69 R> 9 shows this data, although additional registration of the schedule is carried out, the report to the answer and user to a transmitting agency is created.
[0207] Thus, by understanding the content from the received information, this system makes the response which a system should perform according to a situation, and is performed.
[0208] In addition, although processing in which an answer was created and returned to the partner who has sent E-mail, without a system checking to a user was performed in the above-mentioned explanation, this is the action performed from the result of the text "connect the more inconvenient one urgently" being in a document, and having analyzed this since it judged that the urgency of a response was high. Here, when the holding schedule was quite previous time, or it is a meeting of arbitration participation etc. and it is judged that the urgency of a response is low, it opts for the action performed according to an urgency, such as checking to a user in advance of a response.
[0209] Moreover, it is possible like the directions from the user by natural language to access and answer a schedule, an individual database, etc. to the natural language input from a user.
[0210] for example, — "— whom — that the telephone number of that accesses an individual database by asking a question what No. ?" with natural language **** — "— the board on the 16th is where — it is possible by receiving a question with natural language as ?" to access a schedule and to reply to a user.
[0211] Drawing 66 is drawing showing the class [exterior / which perform overall processing of

this operation gestalt / the system and the exterior] of I/O.
[0212] As an input, it can input from a keyboard or the voice inputted from the natural language information received as an electronic mail or the document inputted as an image from a scanner, an image, a microphone, etc., the image inputted from a camera can be treated. The input of natural language can be acquired by performing character recognition processing to the document read with the scanner, and performing speech recognition processing to voice.
[0213] In an input, those (Idle) without an input look for the work which the system itself should perform, when anything does not have an input from the outside, as step S642 of drawing 64 R> 4 showed, and they are taken as an input. For example, when it is an idle state without the given work, news are accessed, and it goes to take oneself the information which has involvement to a user, and considers as input.
[0214] Moreover, as an output, they are the registration to databases, such as a schedule, filing in a file storage unit, or deletion of data. Furthermore, there are advice to a user, answerback to a transmitting agency, etc. That an important thing can make judgment that it cannot process in the range of an understanding of a system, and carries out the response of the purport which is not made with an output etc. is the point which can perform other actions, when processing is impossible.
[0215] Moreover, as a partner of I/O, there are other processing sections or another applications inside the equipment of a user or the exterior or a system etc.
[0216] Moreover, while close analyzes the document to which it came, carries out data extraction of the information about people, and the information about time amount and stores them in a personal data base or schedule data, information required to guess action expected is also extracted and it is used by planning.
[0217] Close came by the example of drawing 67 . E-mail As description concerning people as a result of analyzing a document,

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To: toshima@abc.canon.co.jp,
rohra@abc.canon.co.jp,
kazuyo@abc.canon.co.jp
From: ichiro@abc.canon.co.jp
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He is Suzuki of a system intellectual property propulsion division.
Suzuki (ichiro@abc.canon.co.jp) 044-549-6312 Canon (extension 620-5151) Co., Ltd. — The intellectual-property headquarters system intellectual property propulsion division exists, among these the person whose mail address is "kazuyo@abc.canon.co.jp" is registered in an individual database, supposing other persons have not registered, the information on PERSON 1, 2, and 3 will be extracted from there like drawing 67 , and they will be registered into a database 651.
[0218] On the other hand, as description of the information about time amount, since "the patent system explanation meeting is planned from [on February 22] 13:30 to 15:00 in B conference room" exists, the information on EVENT1 is extracted from there.
[0219] Furthermore, as description used for guessing action expected, since "connect the more inconvenient one urgently" exists, it is used by the processing explained henceforth [drawing 70].
[0220] Drawing 68 is the flow chart with which the part required for origin was extracted [the flow of the processing for performing processing of drawing 67 and drawing 69] for the flow chart of drawing 64 , and the executive operation step S649 was expressed more concretely.
[0221] According to drawing 67 and the flow of 69, it explains concretely below.
[0222] At step S680, if there is an input of E-mail, the inputted E-mail document will be analyzed for every word or sentence by step S681. At step S683, he understands "there is people's information" and there "there being an event called an explanation meeting" from a signature and a header. Furthermore, he understands "an answer is required at the time of inconvenience."
[0223] People's information is extracted and the plan registered into a database and the plan to register an explanation meeting event into a schedule are built at step S684. An activation plan exists at step S685. At step S686, since it is satisfactory, processing is passed to step S688. At

step S688, people's information is extracted, and it registers with a database, and returns to step S685.
[0224] In the case of drawing 67 , the activation plan to register an explanation meeting event into a schedule exists at step S685. At step S686, since this event can be registered into a schedule without a problem, it passes processing to step S688. A schedule is registered at step S688. If it returns to step S685, since there is also no advice sentence at step S689 by there being no activation plan, processing will be ended.
[0225] In the case of drawing 69 , the activation plan to register an explanation meeting event into a schedule exists at step S685. The collision of a schedule is discovered at step S686. Since there is a problem in activation of a plan, since it is inconvenient, a plan is reorganized at step S687 so that an answer may be reported to delivery and a user. The plan to write an answer and to transmit at step S685 exists. At step S686, since it is satisfactory to activation of a plan, it is step S688, and convenience draws up the document of a bad purport and transmits a reply document to the partner of a transmitting agency. At step S685, the document preparation plan for advice of a user exists. At step S686, it is satisfactory to activation, and is step S688, and the document which notifies a user of having sent the answer which asks you for reconsideration by the content of the E-mail and schedule collision is drawn up. At step S685, there is nothing, an activation plan is step S689, since it has an advice sentence, a user is suitably notified of it, and it ends processing.
[0226] Schedule information by which data extraction was carried out in the example of drawing 69 EVENT1 Schedule planned from before As a result of comparing EVENT2, it turns out that the schedule has lapped. Furthermore, according to the information extracted in the example of drawing 69 , when inconvenient, it also turns out that it must connect. So, in the system using this operation gestalt, using the information of letter creation, since the schedule has lapped, the letter which tells the purport that a board cannot be attended is created and an answer is transmitted automatically.
[0227] Furthermore, the user of the system using this operation gestalt is notified of the system using this operation gestalt having sent the answer automatically.
[0228] [Operation gestalt 24] Drawing 70 is drawing showing an example when a user questions the system of this operation gestalt with voice.
[0229] If a user asks a question "********? which does tomorrow's board where" with voice, a system can answer the location of a board with reference to a user's schedule information. Furthermore, explanation is performed, creating an explanation story and mixing graphical image and voice, after planning whether it becomes intelligible, when the way to the location where a board is held for a user is not found, and a question was asked "Where [of bottom Maruko] it is", and explaining to the user how further with reference to the database to it.
[0230] Drawing 71 is the flow chart with which the flow of processing of drawing 70 was expressed based on the basic flow chart of drawing 64 . Here, the input from the outside serves as a question.
[0231] The processing to the 1st question is explained. At step S710, if voice input (********? which does tomorrow's board where) from the outside is performed, it will be step S711 and an input statement will be analyzed. At step S712, he is a question about tomorrow's board and understands that a user's object is getting to know the location. At step S713, in order to reply to a question, the following plannings are performed. ** Take out tomorrow's schedule. ** Acquire the location registered into the schedule. ** Perform document preparation for notifying the acquired location.
[0232] Although it is step S714, and processing is passed to step S716 since there is no lack of information in this case, since it does not know which board it is when two or more boards exist in a schedule, asking a user at step S715 and reorganizing a plan again will be performed. At step S716, the plan stood at step S713 is performed, and the document of an answer to a user is drawn up. It determines to reply, since the document of which a user should be notified exists at step S717. It is also simultaneously determined that he understands that the input was voice at this time, and an answer will also perform it with voice by it. At step S718, a user is notified of the document changed into voice data.

[0233] Here, although processing is once ended, the question from a user is inputted continuously. The processing to the 2nd question is explained.
[0234] If voice input (where [of bottom Maruko] is it ?) from the outside is performed at step S710, an input statement will be analyzed at step S711. He understands that it is the question which understands that it is the continuation question of the 1st question at step S712, and asks the concrete location of the answered name.
[0235] At step S713, in order to reply to a question, the following plannings are performed. ** The plan to acquire an image required from a plan, ** image database, and the database of a location for what it pours to a plan that explanation is difficult in written form, and ** image is poured in order, and is explained, the plan to draw up the document which doubled with ** image.

[0236] There is no lack of information at step S714. At step S716, sequential execution of the plan stood at step S713 is carried out, and the document of an answer to the user who doubled with the image is drawn up. Since the document of which a user should be notified exists at step S717, it determines to reply. It is also simultaneously determined to explain with voice by it, understanding that the input was voice at this time, and displaying an image on a monitor. A user is notified at step S718. The flow of the processing of a single string of drawing 70 by the above is ended.
[0237] [Operation gestalt 25] When a schedule laps, the example of drawing 72 proposes to a user, after planning how [of the priority of two schedules] should be evaluated and carried out.
[0238] That is, in the case of this example, when one schedule is more important than another side, it is proposed that the schedule of the direction which is not comparatively important is canceled.
[0239] When it has the information that a user can see off a deputy about the schedule which had cancellation proposed, to it, a system can perform further action united with it by replying to a system such. Moreover, it can also learn about the plan to see off a deputy, at this time.
[0240] Drawing 72 is step S686 explained with the flow chart of drawing 68 , and combines other examples of how to stand the plan in step S646 of drawing 64 at the time of discovering the collision of a schedule.
[0241] Although drawing 68 explained as processing which transmits the answer of inconvenience to a partner unconditionally, here explains the processing using two or more reply NINGU as an art of RIPURANNINGU of step S646.
[0242] Drawing 73 is the flow chart of the processing for evaluating a priority from the content of the document and proposing to a user as reply NINGU at the time of a schedule collision. This processing is explained below.
[0243] The priority of the schedule described above is synthetically determined from the attendant to the information which the user set up beforehand for every schedule, and the event contained in a schedule, the object of a schedule, the result analyzed from the received content of a document. Here, the priority determined from an attendant may be set up to a person from whom a user becomes an attendant beforehand.
[0244] Moreover, a user may set up beforehand the priority determined from the object of a schedule, and it may be made to be determined by taking into consideration similarity with the object and field in which the user who learned from the past actuation is interested. That is, priority is given to the direction of the schedule of a computer-related event over an estate-related event when the user is engaged in computer-related work. Of course, priority may be given to the direction of the schedule of an estate-related event, if the user is considering the purchase of a house and that is memorized as information about a user.
[0245] On the other hand, as a priority determined from the analysis result of the content of a document, when the schedule of the document of the description "be sure to be present", and the document of the description "be present if it can do" collides, suppose that former one is judged that a priority is high etc., for example.
[0246] In drawing 73 , the existing schedule information is acquired at step S730. Step S731 estimates the priority of new schedule information. The priority of both information is measured at step S732. The plan to draw up the advice document (for example, for two schedules which

collide to be shown and for it to be asked whether I may cancel about the one where a priority is lower) for asking a user from a comparison result at step S733 is stood. The created advice sentence is told to a user at step S734. At step S735, the answer from the user to an inquiry of a plan is obtained. Here, in order to perform a user's answer and to plan a user's answer again as an input, the same processing as answer RIPURANNINGU of drawing 68 is performed (drawing 74).

[0247] Drawing 74 is the flow chart of processing of above-mentioned RIPURANNINGU.

[0248] The answer eventually obtained by drawing 73 at step S740 is given to an input. An input-statement document is analyzed at step S741. At step S742, he understands that they are modification of a schedule, and the first directions plan.

[0249] The following plans are stood at step S743. (a) Change a schedule. (b) Draw up the document for notifying an acting man. (c) Learn a new plan. (d) Draw up the document of which a user is notified. (e) Notify that it remembers and there is a schedule.

[0250] At step S744, the plan stood at step S743 is performed. (a) Change a schedule. (b) Draw up and notify the document for notifying an acting man. (c) Learn the plan to order an agent. (d) Add to a creation document that draw up the document for notifying a user, it (e) Remembers, and there is a schedule.

[0251] At step S745, the advice sentence to a user is told to a user. Above, explanation of the processing for performing processing of drawing 72 is ended.

[0252] [Operation gestalt 26] Drawing 75 is drawing showing a whole image also including I/O of the system of this operation gestalt. Drawing 76 is a flow chart showing the flow of processing of the whole system of drawing 75 .

[0253] The information inputted from various input devices, such as E-mail, voice, keyboard entry, WWW, a telephone, FAX, a scanner, and a camera All are analyzed in the input Management section 751 (step S760). In the Core section 752 After understanding the content and planning suitable processing (step S761), by the output Management section 753 After determining output media and making preparations of the content of an output, or an output path (step S762), it is outputted from various output equipment, such as E-mail, voice, WWW, a telephone, FAX, a printer, and a copy machine.

[0254] Drawing 77 -79 are the flow chart with which step S760 (processing of the input Management section 751) which is each step of the whole drawing 76 flow chart, step S761 (processing of the Core section 752), and step S762 (processing of the output Management section 753) were expressed concretely.

[0255] In drawing 77 , the input Management section 751 is step S770, and waits for a new input. The information inputted at step S771 is acquired. At step S772, analysis processing of the acquired input is performed, when it has recognized, if . At this time, the input Management section 751 can receive information from various media, is an approach according to each media, and performs recognition and analysis.

[0256] In drawing 78 , the Core section 752 performs receipt processing for the input analyzed by drawing 77 .

[0257] At step S780, he analyzes and understands the object of input from an analysis result. At step S781, it investigates how the object of input is related to itselves (a system, user). That planning which should perform what from its relation at step S782 according to the object is performed. At step S783, the plan made from step S782 is performed.

[0258] In drawing 79 , if the output Management section 753 determines whether it is necessary to carry out a response from the result performed by drawing 78 and has the need, it will create and output a response.

[0259] At step S790, analysis of the result performed by drawing 78 is performed. At step S791, it judges whether the response to the performed result occurs. If there is nothing, processing will be ended as it is. When a response occurs, it is determined whether what we do with the response to the response from the outside at step S792. The media which perform a response are determined at step S793. The response doubled with the determined media is created at step S794. The response created at step S795 is published according to media. At step S796, a response is outputted physically actually. The above is processing showing the whole drawing 75

image.
[0260] For example, when E-mail which tells a user about holding of a board arrives, input is first analyzed in the procedure of drawing 77 by the input Management section 751. From this result, in the procedure of drawing 78 , it is planned how a user and a system should correspond and the Core section 752 processes it. the result is passed to the output Management section 753, processing is performed by the procedure of drawing 79 , and a response should be carried out -- ** -- when planned, a response is performed actually.
[0261] Here, it is step s782, and since it will be planned if it is required to notify a user positively depending on the content of the board and the situation of the schedule of the user before it which were told by E-mail, a response is needed. Therefore, it is judged as those with a response at step s791. The content which carries out a response is determined at step s792. For example, when the schedule has collided, selection of one of schedules is urged or, in the board which is not understood whether it should participate or not, the content itself which carries out a response, such as asking the decision, is determined here. Then, in step s793, the media which can tell most effectively the content of the response for which it opted above are determined. For example, if a user is in a going-out place, the media of which the user of going-out places, such as a telephone and FAX, can also be notified are chosen, and if it is the midst which is using the personal computer etc. for reverse, media, such as a personal computer which can display various data effectively, will be chosen. Then, in steps s794 and s795, according to the content and media which were determined above, a document and an image are created, and a response is created and published by the approach of being further changed into natural language voice depending on media.
[0262] Drawing 80 is a flow chart for explaining how data are extracted from the information still more detailed and inputted [the overall flow of drawing 75].
[0263] By the system using this operation gestalt, when a document is inputted, with reference to notations for classification distinction, such as a layout of a document, and a bar code, the type of a document is first guessed at step S801. Consequently, if a document can guess a letter, a report, a patent official report, etc. and it cannot progress and guess to step S803, it progresses to step S810, perfect OCR is performed, and a document type is decided.
[0264] At step S803, by OCR, in order that the guessed document type may check whether it is the right, OCR of the block characteristic of checking a document type is carried out, and it is interpreted (refer to drawing 82). Consequently, at step S804, the destination of a letter, the patent number of a patent official report, etc. are known, and a document type is checked. If in agreement [with the document type which this checked document type guessed] and it is not [it progresses to step S806 and] in agreement with it, it progresses to step S810. For example, if it is the electronic forms with which the character string which expresses the class of document to a part for the upper part of a form is printed, document type decision is easy by carrying out OCR of the upper part of the form.
[0265] At step S806, a specific block is read by OCR using the knowledge base of the document type by which the check was carried out [above-mentioned], and it interprets, and checks [whether the information related to the information acquired as a result at step S807 existed in the past, and], when it exists, it progresses to step S808, and when it does not exist, it progresses to step S810. Consequently, the destination, a patent number, etc. are known and it is understood whether it is the answer of the letter sent in the past.
[0266] At step S808, the object is judged from the content of the text which becomes important for origin about the situation by which an understanding was carried out [above-mentioned] etc., and it opts for the processing performed at step S809.
[0267] At step S811, an analytical range is extended and analyzed from the object understood above in the range in which OCR of others is not carried out, and processing is performed actually henceforth [step S812]. Consequently, processing of filing etc. will be performed if required.
[0268] Since OCR can be performed by the above-mentioned processing, guessing the content, it becomes possible obtaining an efficient exact OCR result rather than performing perfect OCR suddenly like before, and processing to which it is carried out based on an OCR result can also

be performed correctly.
[0269] Drawing 81 is drawing showing the letter set as the object of data extraction processing / example of fax.
[0270] In this example, the type of a document is guessed from the layout of a document at step S801. Consequently, it becomes a DocType1 = letter / fax.
[0271] On the other hand, a specific block is read and interpreted by OCR at step S803. (Refer to drawing 82) Consequently, From, To, Dear Sir, etc. are obtained and it is checked with a DocType2= letter / fax at step S804.
[0272] Specific block reading by OCR explained at step S803 of drawing 80 is explained concretely. Drawing 82 R> 2 is drawing explaining this processing.
[0273] In the system using this operation gestalt, scanning is performed as follows.
** Read into a high speed by the PURISU can with low resolution.
** Compare the read informational form with the form information currently stored in DB823, and when in agreement, read only the information inputted in addition to form, or the information on the field (for example, part within the limit on the card of drawing 82) specified for every form with high resolution.
** Analyze only the field read above as an object of OCR, and continue processing.
[0274] Furthermore, since the possibility of the form with the same document which it is going to read with the fixed time interval since it assumes that two or more cards of the same form exist in this example is high, it processes as a thing of the same form first, and re-analysis is performed as that from which form differs only after conflict occurs.
[0275] By this, an analytical range is limited, an analysis domain is pinpointed by moreover specifying form with the large improvement in processing speed, and the large improvement in analysis precision is attained.
[0276] Decision of the object from a content etc. explained at step S808 of drawing 80 is explained concretely.
[0277] In the system using this operation gestalt, decision of processing is performed by the procedure of drawing 83 with reference to the data of the date. The following processing is performed when an informer is a user.
** When the date is today, judge that it transmits by FAX.
** When the date is before yesterday, ask a user whether the before same document was sent and whether the same content has been seen, and judge whether it is the mistake of filing, retransmission of message, and a user.
** When the date is after tomorrow, hold till the day specified as the date, or ask whether to be a user's mistake.
[0278] When the document of drawing 81 was made into the example, Date1 is made into the date of a document and Date2 is specifically made into today's date, ** Date1 = November 25, 1996 & Date2 = November 25, 1996 - Document **** ** Date1 = November 25, 1996 & Date2 = July 2, 1997 - File ** Date1 = November 25, 1995 & Date2 = November 26, 1996 Contents date = December 18, 1996, 22 days - Mistake [0279] Drawing 83 is an example of the flow chart of processing which analyzes the object from the inputted document. If a document is inputted, it is judged that it is the document which the document which the transmitting person had it judged at step s830 whether you were a user, and was inputted in other than a user received, it will be step s831, the objects, such as filing and data extraction, will be probed corresponding to it, and it will end.
[0280] On the other hand, when a transmitting person is a user, in order to analyze further what kind of document the inputted document is, it progresses after step s832. The date of a document and today's date are compared by step s833, and when it is confirmed whether the document was before transmitted at step s835 when the date was near and it has not transmitted, it is determined that the object is "transmission of a document." Moreover, in the case of the document transmitted before, it is step s843 and the objects, such as filing and retransmission of message, are probed corresponding to it.
[0281] It is confirmed whether on the other hand, when the date of a document was quite a former thing, it progressed and transmitted to step s836, and when it is the transmitted

document, similarly it progresses to step s843. When having not transmitted, it progresses to step s837 and it is confirmed whether the other date is indicated from the information in a document. When the date is found, similarly it progresses to step s843. It is judged that the date may have mistaken, although transmission of a document can be considered as an object when there is no date.

[0282] Moreover, when it is confirmed whether there is any other publication of the date from the information in a document at step s840 when the date of a document is quite [date / current] a previous thing and the date is found at step s841, it is determined that the object is "transmission of a document." When there is no date, it progresses to step s839.

[0283] [Operation gestalt 27] Drawing 84 is drawing showing one of the examples of the structure of a system which used this operation gestalt. In this example, a system operates like the present FAX.

[0284] However, according to the system of this operation gestalt, without a user specifying a transmission place, from the information on the bar code given to the read document, or a cover sheet, the transmission place of a document is judged and it can transmit to a suitable transmission place.

[0285] By this, information will be sent suitable for a printer, and FAX, E-mail and WWW.

[0286] [Operation gestalt 28] Drawing 85 is drawing showing one of the examples of the structure of a system which used this operation gestalt. In this example, a system realizes the function of a desk sorter to process all the documents on a desk.

[0287] That is, according to the content of the read document, a classification, filing, scheduling, other data extraction, and automatic activation of processing are performed.

[0288] [Operation gestalt 29] Drawing 86 explains to a detail further the system explained by drawing 85 . Based on drawing 86 R> 6, procedure is concretely explained according to the flow chart of drawing 87 .

[0289] Drawing 87 is a flow chart showing the procedure of this operation gestalt. Drawing 88 and drawing 89 express the information used during this processing, and drawing 88 expresses the information of the common knowledge base. Drawing 89 expresses the information of the knowledge base of the field specified as the cover page. The character string contained in the document inputted with reference to the information defined by drawing 88 and drawing 89 with this operation gestalt is compared with the character string defined by the column of the character string in drawing, and it analyzes by acquiring the concept of the congruous items, Role which specifies the semantics further, Condition which specifies the information which follows, or the directed processing Action.

[0290] In drawing 87 , at step S870, a cover page is scanned and OCR processing is performed. At step S871, information, such as a name of a transmitting person and an addressee, the telephone number, and a FAX number, is extracted with reference to the knowledge base of drawing 88 . The extracted information is registered into a database at step S872. For example, the cover page of a document which received in the example of drawing 86 "To : The character string Macrohard Corp." is contained. Then, the item "To" which is in agreement as compared with the item defined as the column of the character string of drawing 88 is discovered, and since the Role is a receiving firm name or a name, "Macrohard Corp." is extracted as an addressee's information.

[0291] At step S873, actions and JOB(s), such as the advice approach, a means and a filing activity, and a location, are taken out from the knowledge base of the field specified as the cover page of drawing 89 . For example, the cover page of a document which received in the example of drawing 86 "File : A character string called MH/Contract" is contained. Then, the item "File" which is in agreement as compared with the item defined as the column of the character string of drawing 89 is discovered, as directed action, filing is taken out and "MH/Contract" is extracted out of a document as information on a filing location.

[0292] Here, it is on Date1 = November 25, 1996. Supposing it is on & Date2 = November 25, 1996, as explained per drawing 83 , it will be judged as object-document ****.

[0293] At step S874, it checks whether action for the object of this processing exists. At step S875, action transmitted since it is the object to transmit a document to a partner is performed.

It judges whether at step S876, there is any need for filing from the information on a cover page. At step S877, since there is need in the example of drawing 86 , it files in "MH/Contract" which is the directed location.
[0294] At step S878, it judges whether it is necessary to notify a transmitting person from the information on a cover page like step S876. Since notifying a transmitting person with voice is directed, a transmitting person is notified of having transmitted the document to the partner at step S879 with voice. At step S880, it judges whether other actions occur. In step S881, since there is keyword assignment, an index is created by keyword called ABC.
[0295] [Operation gestalt 30] Drawing 90 is drawing showing the example which refers to the hysteresis performed in the past based on directions by the natural language by which voice input was carried out, and performs processing. Based on drawing 90 , processing is explained according to the flow chart of drawing 91 .
[0296] Drawing 91 is a flow chart which shows the flow of processing of this operation gestalt. From a user, with voice, if the directions "Fax Contract again to John.Notify him by Phone." are received, this system will analyze the object of directions by the received natural language, and he will understand "broadcasting a document called Contract again to John by FAX, and telling arrival by telephone." Then, in order to specify Document Contract and the transmission place John concretely and to perform processing, the flow of drawing 91 is performed.
[0297] At step s910, since transmission is performed before, retransmission of message acquires hysteresis information from a database. Consequently, Documents Contract and John are specified from hysteresis information. At step S911, it is from a personal data base. John The destination is acquired. Although a transmission place cannot be specified in the database if it is original since two persons' John called John Smith and John Bush exists, it is having referred to hysteresis information at step s910, and before, it becomes clear that John which sent Document Contract is John Smith, and a transmission place is specified. At step S912, the "Contract" document is acquired from a filing database. At step S913, it is a transmission place. John A document is transmitted. At step S914, since there are advice directions "Notify him by Phone", it is judged that there is the need for advice. At step S915, like drawing 89 , it directs to FAX901 of a transmission place from the rule of the knowledge base so that advice may be given to an addressee by telephone. At step S916, since action the outside of it is not directed, it ends processing.
[0298] Furthermore, FAX901 which received the document notifies having received the document from Mr.Doors to John by telephone according to the above-mentioned advice directions. In addition, when FAX901 cannot notify by telephone, it may be made to carry out by being a transmitting agency.
[0299] [the operation gestalt 31] — the content of the input-statement document to the user by whom drawing 95 was analyzed should perform something — ** — after judging and asking a user actually, it is the flow chart of the example which carried out automatic activation of the required processing. Drawing 92 is drawing showing the example of an input-statement document. Drawing 93 is drawing showing the content of the conversation of a system and a user. Drawing 94 is the output-statement document which the system drew up, judging from the conversation of drawing 93 .
[0300] Based on the flow chart of drawing 95 , processing until it draws up the output-statement document of drawing 94 from the input-statement document of drawing 92 R> 2 is explained.
[0301] At step S950, he analyzes the input-statement document of drawing 92 , and understands the following objects. (a) John Smith him — arrive in Yokohama at 3:00 on November 28. (b) John Smith him — poor at Japanese. (c) I want you to pick up at a station.
[0302] At step S951, it judges whether a user should perform something from the understood content. Here, since it judges that it must go to invite to a station, it moves to step S952. At step S952, it judges whether a it (system) can perform in a deputy. Here, since a system cannot go to greet by oneself, it moves to step S953. At step S953, it judges whether it is necessary to ask a user or not, and progresses to step S954. From the destination of the document inputted in this example Aruna Rohra Since it is judged that it is a request of addressing to him, it moves to step S954.

[0303] At step S954, it asks by doing the activity for asking a user (Mr. Aruna Rohra). Although it must go by this example to make Mr. John a user from the result understood at step s951, it is asked to the user how it should be coped with. It judges what is performed next from the asked result at step S955, and judges whether it is necessary to take action or not. In this example, since the user is directing so that it may order going to invite to Mr. Tanaka, he takes action according to those directions. Therefore, since the need of ordering whether I being able to ask of Mr. Tanaka instead here came out, it is judged that it is necessary to take action. At step S956, document preparation for asking a deputy of Mr. Tanaka and communication are performed. Here, the document for electronic mails is drawn up and it transmits. In this example, since it says that the information that Mr. John will arrive on the 28th, directions of wanting you to pick up instead of a user, and the document of an original copy that became the origin of this request are attached, automatic creation of the document is carried out.
[0304] The flow of the processing for above carrying out the matter (here, that is it going for welcoming to a station) from which a user has to take action actually from an input-statement document was explained.
[0305] [Operation gestalt 32] Drawing 96 is drawing showing the operation gestalt which operates a system with remote control.
[0306] According to the system of this operation gestalt, each other can be specified as each other by communicating directly [a device and remote control] or indirectly. Thereby, a function called high UI of a degree of freedom corresponding [actuation according the capacity of ** automatic device specification and ** device to UI (user interface) of the acquisition from a device and ** device proper and ** voice and ** basic operation] to UI of community and ** user proper and ** situation to all devices is realized.
[0307] That is, the device for actuation is automatically recognized only by turning ** remote control to the device for actuation. ** Acquire the information for every device from the device itself through IrDA or wireless LAN. ** While realizing UI of a device proper from the information for every acquired device and enabling actuation with ** voice ** It is realizing common basic operation by making fundamental actuation operational with the same remote control, and referring to ** user's identification information. It acquires required information from a database or an address book for every user, and it not only realizes UI of a user proper, but realizes optimal UI according to ** situation.
[0308] At drawing 96 , by turning remote control 960 to FAX963, model identification information is obtained from FAX963, and UI corresponding to this model is activated and is continued to displayed "Fax to". With a touch pen By inputting the character string "Fax to John" and directing to FAX963 The FAX number of John is read from the address book 965 in a personal computer 964, and the document with which it was specified on the file in the document set to FAX963 or a personal computer 964 is transmitted to the number. About this detail, it mentions later.
[0309] [Operation gestalt 33] Drawing 97 is drawing showing the example of a status monitor.
[0310] According to the system of this operation gestalt, information other than the machine with which the user is performing the direct control can be referred to.
[0311] Thereby, it is ** remote. & The function in which it can respond to all the devices in which ** voice actuation with the function of the common I/O for seeing handicap management, ** automatic device specification, and ** status and ** cellular phone and ** infrared I/O are possible is realized. That is, even if it is the location distant from the device for **, it becomes acquirable [required information]. ** Recognize the device for actuation automatically only by turning remote control to the device for actuation. ** realizing common basic operation by making fundamental actuation operational with the same remote control, and giving the function of a cellular phone to ** remote control — operability — improving — ** voice actuation — possible — carrying out — ** — a response in all the devices in which infrared I/O is possible is attained by using a general protocol.
[0312] In drawing 97 , the status monitor 970 is turned to a printer 961, a copy machine 962, or FAX963, by inputting and directing the character string "Status" with a touch pen, status information can be read from the device to which the status monitor 970 was turned to the

status monitor 970, and the user of the status monitor 970 can check the status of each device. Moreover, even when a personal computer 964 is in the location which cannot receive the instruction from the status monitor 970 for example, status information can also be read from a personal computer 964 to the status monitor 970 through a network and a printer 961 by specifying a personal computer 964 to the printer 961 grade which can communicate through this personal computer 964 and network, and requiring the status.

[0313] [Operation gestalt 34] Drawing 98 is drawing in which remote control 960 recognizing an object model and showing the example which reads corresponding UI from the interior of remote control 960, and displays it. It is the screen of a default where the message "turn to a machine to operate" was displayed on remote control in the condition of having not turned to the object model, like the center of drawing.

[0314] Here, the flow of communication between remote control and an object model is explained. In addition, ** and ** are not indispensable at the following explanation. For example, the same effectiveness is realizable if the object model has always emitted the signal towards remote control at fixed spacing by **. Or you may make it an object model or other equipments detect that remote control 960 is turned to an object model from the physical relationship of remote control 960 and an object model. Moreover, the equipment configuration of an object model is seen, and remote control 960 reads the bar code given to the object model, and you may make it identify an object model or identify an object model by **. That is, only the indispensable part is illustrated in drawing 98 .

[0315] ** A user turns remote control 960 to an object model.

** In order to determine the timing which sends an object model recognition signal demand signal to an object model from remote control 960, a user touches the touch panel of remote control 960 etc. Or it is set up so that an object model recognition signal demand signal may always be beforehand sent at fixed spacing.

** Send an object model recognition signal demand signal to an object model from remote control 960.

** If it is set up according to the demand of the object model recognition signal demand signal from remote control 960 so that an object model recognition signal may always be beforehand sent at fixed spacing, an object model recognition signal will be sent according to the setting out.

** The remote control 960 which received the object model recognition signal determines UI in accordance with the object model which a signal shows, and displays corresponding UI currently stored in the remote control 960 interior. Here, although the recognition signal was made into every model, it is carrying out to every device, and UI from which this model also differs for every device can also be used.

[0316] Remote control recognizes an object model and drawing 99 is a flow chart in the example which reads corresponding UI from the interior of remote control 960, and displays it which shows the example of processing by the side of remote control. The flow of processing by the side of remote control is explained.

[0317] At step S991, it stands by until there is directions actuation of a user. The object model recognition signal demand signal for having an object model recognition signal sent from an object model at step S992 is sent by the infrared approach. At step S993, it stands by until an object model recognition signal is sent from an object model. UI corresponding to the received object model recognition signal is acquired from the memory of the interior which can refer to remote control 960 etc., and is expressed as step S994.

[0318] Remote control 960 recognizes an object model and drawing 100 is a flow chart in the example which reads corresponding UI from the interior of remote control 960, and displays it which shows the example of processing by the side of an object model. The flow of processing by the side of an object model is explained.

[0319] At step S1001, it stands by until there is a demand signal from remote control 960. At step S1002, an object model recognition signal is sent by approaches, such as infrared ray communication.

[0320] [Operation gestalt 35] Drawing 101 is drawing in which remote control shows reception

and the example to display for UI from an object model. The screen of a default is displayed on the remote control 960 in the condition of having not turned to the object model, like the center of drawing 101 .
[0321] Here, the flow of communication between remote control and an object model is explained.
[0322] In addition, ** to ** is not indispensable at the following explanation. For example, the same effectiveness is realizable if the object model has always emitted the signal towards remote control at fixed spacing by **. Or you may make it an object model or other equipments detect that remote control 960 is turned to an object model from the physical relationship of remote control 960 and an object model. Moreover, the equipment configuration of an object model is seen, and remote control 960 reads the bar code given to the object model, and you may make it identify an object model or identify an object model by **. That is, drawing 101 is explaining only the indispensable part.
[0323] ** A user turns remote control 960 to an object model.
** In order to determine the timing which sends UI demand signal to an object model from remote control 960, a user touches the touch panel of remote control 960 etc. Or it is set up so that UI demand signal may always be beforehand sent at fixed spacing.
** Send UI demand signal to an object model from remote control 960.
** Send UI according to a demand of UI demand signal from remote control 960. Or if it is set up so that UI may always be beforehand sent at fixed spacing, UI will be sent according to the setting out.
** The remote control 960 which received UI displays UI.
[0324] Drawing 102 is a flow chart with which remote control 960 shows the example of the processing [in / for UI / reception and the example to display] by the side of remote control from an object model. The flow of processing by the side of remote control is explained.
[0325] At step S1021, it stands by until there is directions actuation of a user. UI demand signal for having UI sent from an object model at step S1022 is sent by approaches, such as infrared ray communication. At step S1023, it stands by until UI is sent from an object model. Received UI is expressed as step S1024.
[0326] Drawing 103 is a flow chart with which remote control shows the example of the processing [in / for UI / reception and the example to display] by the side of an object model from an object model. The flow of processing by the side of an object model is explained.
[0327] At step S1031, it stands by until there is a demand signal from remote control 960. At step S1032, UI is sent by approaches, such as infrared ray communication.
[0328] [Operation gestalt 36] When UI of each device has drawing 104 in the wireless LAN server 1041 and UI is required towards the copy machine 962 which is an object model about remote control 960, it is the request from a copy machine 962 and is drawing showing the example as which UI is transmitted and displayed from the wireless LAN server 1041 to remote control 960.
[0329] The screen of a default is displayed on the remote control 960 in the condition of having not turned to the object model, like the center of drawing 104 .
[0330] Here, the flow of communication between remote control and an object model is explained.
** A user turns remote control 960 to an object model (here, it considers as a copy machine 962).
** In order to determine the timing which sends UI demand signal to an object model from remote control 960, a user touches the touch panel of remote control 960 etc. Or it is set up so that UI demand signal may always be beforehand sent at fixed spacing.
** Send UI demand signal to an object model with the remote control identification information (it considers as remote control A) for identifying remote control 960 self.
** The object model which received remote control identification information and UI demand signal from remote control requests transmission of delivery and UI from the server 1041 which has managed the object model for the object model identification information (copy machine) which discriminates the object model itself from remote control identification information

(remote control A).
** A server 1041 sends UI of the model shown by object model identification information through wireless LAN etc. to the remote control 960 shown by remote control identification information.
** The remote control 960 which received UI of sent addressing to itself displays UI.
[0331] Remote control does not receive UI from an object model directly, but drawing 105 is the flow chart of processing by the side of remote control [in / through wireless LAN etc. / for UI / reception and the example to display].
[0332] The flow of processing by the side of remote control is explained. At step S1051, it stands by until there is directions actuation of a user. The remote control identification information for discriminating the remote control itself from UI demand signal for having UI sent to an object model at step S1052 is sent by approaches, such as infrared ray communication. At step S1053, it stands by until UI from where is sent. Received UI is expressed as step S1054.
[0333] Drawing 106 is a flow chart with which remote control does not receive UI from an object model directly, but shows the example of the processing [in / for UI / reception and the example to display] by the side of an object model through wireless LAN etc. The flow of processing by the side of an object model is explained.
[0334] At step S1061, it stands by until there is a demand signal from remote control 960. At step S1062, the remote control identification information received from remote control and their own object model identification information are transmitted to a server 1041, and transmission of UI is requested.
[0335] Drawing 107 is a flow chart with which remote control does not receive UI from an object model directly, but shows the example of the processing [in / for UI / reception and the example to display] by the side of a server through wireless LAN etc. The flow of processing by the side of a server is explained.
[0336] At step S1071, it stands by until there is a UI Request-to-Send signal from an object model. UI of the model which object model identification information shows to the remote control 960 which the remote control identification information received from the object model shows at step S1072 is sent.
[0337] [Operation gestalt 37] When drawing 108 has UI of each device in the wireless LAN server 1041 and UI is required towards FAX963 which is an object model about remote control 960a or 960b, UI which is the request from FAX963 and is different from the wireless LAN server 1041 for every user to remote control 960a or 960b is drawing in which being transmitted and showing the example displayed.
[0338] The screen of a default is displayed on remote control 960a or 960b in the condition of having not turned to the object model, like the center of drawing 108 . This screen is common to remote control 960a and 960b.
[0339] Here, the flow of communication between object models is explained to be a user, and remote control 960a or 960b.
** A user turns remote control 960a or 960b to an object model.
** In order to determine the timing which sends UI demand signal to an object model from remote control 960a or 960b, a user touches the touch panel of remote control 960a or 960b etc. Or it is set up so that UI demand signal may always be beforehand sent at fixed spacing.
** Send both UI demand signals for the remote control identification information (remote control A, remote control B) for identifying remote control 960a or the 960b itself, and the user identification information (an upper person, beginner) for identifying the user itself to an object model.
** From remote control 960a or 960b, the object model which received remote control identification information, user identification information, and UI demand signal sends the object model identification information which identifies the object model itself with the received remote control identification information and user identification information to the server 1041 which has managed the object model.
** A server 1041 sends UI shown by user identification information and object model identification information through wireless LAN etc. to remote control 960a or 960b shown by remote control identification information. In the example of drawing 10808 , for the beginner, UI

for a broadcast function with it difficult [to use] is not sent to a beginner, but it has sent only to the upper person.
** Remote control 960a or 960b which received UI of sent addressing to itself displays UI.
[0340] Although he was trying to transmit a user's level information from remote control, you may make it distinguish a user's level from remote control in an object device or a server as user identification information, in the above-mentioned example, from the identification information which received, as the information which identifies users, such as a user name, according to an individual is transmitted.
[0341] Although the above-mentioned example explained only within UI, if different user identification information for every user is referred to, the content of the urgent mail which reached the user, a schedule to tell immediately, etc. can be included in UI, and it can transmit to remote control.
[0342] Drawing 109 is a flow chart which shows the example of processing by the side of remote control [in / for UI from which remote control does not receive UI from an object model directly, but differs for every user through wireless LAN etc. / reception and the example to display]. The flow of processing by the side of remote control is explained.
[0343] At step S1091, it stands by until there is directions actuation of a user. The remote control identification information for discriminating the remote control itself from UI demand signal for having UI sent from an object model at step S1092 and the user identification information for identifying the user itself are sent by approaches, such as infrared ray communication. At step S1093, it stands by until UI from where is sent. Received UI is expressed as step S1094.
[0344] Drawing 110 is a flow chart [in / for UI from which remote control does not receive UI from an object model directly, but differs for every user through wireless LAN etc. / reception and the example to display] which shows the example of processing by the side of an object model. The flow of processing by the side of an object model is explained.
[0345] At step S1101, it stands by until there is a demand signal from remote control. At step S1102, with the remote control identification information received from remote control, and user identification information, its own object model identification information is transmitted to a server 1041, and transmission of UI is requested.
[0346] Drawing 111 is a flow chart [in / for UI from which remote control does not receive UI from an object model directly, but differs for every user through wireless LAN etc. / reception and the example to display] which shows the example of processing by the side of a server. Moreover, drawing 112 is an example of the table having shown UI determined from an object model and user identification information. The flow of processing by the side of a server is explained.
[0347] At step S1111, it stands by until there is a UI Request-to-Send signal from an object model. With reference to a definition as shown in drawing 112 , UI corresponding to object model identification information and user identification information is sent to the remote control which the remote control identification information received from the object model shows at step S1112.
[0348] [Operation gestalt 38] Drawings 113 and 114 are drawings showing the example which realizes the function which the model for actuation before an eye does not have. The flow of communication between the user of this example, remote control, and an object model is explained.
** A user turns remote control 960 to an object model, and specifies the function to want to carry out.
** The model for actuation which received the demand from remote control 960 tells the demand to a server 1041.
** A server 1041 sends UI of the model corresponding to the demanded function.
** Remote control 960 displays UI which received.
** A user operates it according to directions of UI. In the case of this example, a user sets a document to send to the copy machine 962 before an eye, and directs and performs the destination with remote control 960.

** Ask other devices to be for that he can do it to perform the device for actuation by itself, and impossible [the thing of it] by yourself. In the case of this example, a copy machine 962 performs reading of a document, but since FAX transmission cannot be carried out, the content of operator guidance, such as a transmission place, is sent to FAX963 with document data.
** FAX963 carries out FAX transmission at the transmission place which had sent document data specified according to directions.
[0349] In order to determine the device which requests the function which cannot do a copy machine 962 by itself in the above-mentioned example, it may be made for each device to have the information about the function of other devices, and you may make it determine, as a result of asking whether the function can be performed to each device on a network. Or you may make it ask the server 1041 with the information of a function and a corresponding model.
[0350] [Operation gestalt 39] In the reasons of there being an obstruction in the middle of the model for actuation, and remote control before an eye, drawing 115 is drawing showing the example which tries indirect communication in other paths, when remote control does not have a model for actuation, and direct communication ****.
[0351] Here, the flow of communication between a user, remote control, and an object model is explained. In addition, ** to ** is not indispensable at the following explanation. For example, the same effectiveness is realizable if the object model has always emitted the signal towards remote control at fixed spacing by **. That is, only the indispensable part is illustrated in drawing 115 .
[0352] ** A user turns remote control 960 to an object model.
** In order to determine the timing which sends UI demand signal to an object model from remote control 960, a user touches the touch panel of remote control 960 etc. Or it is set up so that UI demand signal may always be beforehand sent at fixed spacing.
** Send UI demand signal to an object model from remote control 960.
** If the object device is set up according to the demand of UI demand signal from remote control 960 so that UI may always be beforehand sent at fixed spacing, it will send UI according to the setting out.
** The remote control 960 which received UI displays UI.
** Here, with remote control 960, when being set up so that the fixed time amount progress back may be spent from UI demand signal transmission and UI may be spent at fixed spacing and UI is not sent during more than the spacing, send UI demand signal by alternative pathway. In this example, when communication by the infrared signal cannot be realized, communication using wireless LAN is tried.
** Display acquired UI through wireless LAN.
[0353] In the reasons of there being an obstruction in the middle of the model for actuation, and remote control before an eye, drawing 116 is a flow chart which shows the example of the processing by the side of remote control in the example which tries indirect communication in other paths, when remote control does not have a model for actuation, and direct communication ****. The flow of processing by the side of remote control is explained. At step S1161, it stands by until there is directions actuation of a user. The remote control identification information for discriminating UI demand signal and the remote control itself for having UI sent from an object model at step S1162 is sent by the infrared approach. At step S1163, it is confirmed whether UI was received or not. At step S1164, it is confirmed after demand transmission whether fixed time amount progress was carried out. The remote control identification information for discriminating the remote control itself from UI demand signal for having UI sent from an object model at step S1165 is sent by different approaches from the dispatch path in step S1162, such as wireless LAN. Received UI is expressed as step S1166.
[0354] In this case, by the wireless LAN server 1041 which received UI demand signal, although UI demand signal directly transmitted to the model for actuation itself will be sent to the wireless LAN server 1041, since the model for actuation is unknown, the menu for choosing a model (function) is displayed first. And UI corresponding to the selected model is displayed. The wireless LAN server 1041 receives a model selection signal from remote control 960, and you may make it this UI transmit UI corresponding to that model to remote control 960, and may

make it transmit two or more selectable UI from that menu with said menu.
[0355] [Operation gestalt 40] Drawing 117 is drawing showing the example which saves as hysteresis the actuation and action which the user performed, and time of day with the important information in connection with it.
[0356] Here, it explains the actuation and action which the user performed, and flowing when saving time of day as hysteresis with the important information in connection with it.
** A user sets a document to FAX963 and directs to transmit to Mr. a of A company with a user (addresser) name.
** FAX963 is a document by directions of Mr. Tom while transmitting a document according to directions. The data sent to Mr. a are told to a server 1041 with the sent document and sending time of day.
** A server 1041 saves the received data as hysteresis information while saving the received document as a file [File ABC] of a suitable identifier.
[0357] Drawing 118 is a flow chart in the example which saves as hysteresis the actuation and action which the user performed, and time of day with the important information in connection with it which shows the example of processing by the side of remote control. The flow of processing by the side of remote control is explained.
[0358] At step S1181, it stands by until there is directions actuation of a user. The remote control identification information for discriminating the remote control itself from the demand signal over the directions actuation which the user performed at step S1182, and the user identification information for identifying the user itself are sent by approaches, such as infrared ray communication. At step S1183, it stands by until UI from where is sent. Received UI is expressed as step S1184.
[0359] Drawing 119 is a flow chart which shows the example of the actuation and action which the user performed, and the processing by the side of an object model in the example which saves time of day as hysteresis with the important information in connection with it. The flow of processing by the side of an object model is explained.
[0360] At step S1191, it stands by until there is a demand signal from remote control 960. At step S1192, processing corresponding to the demand signal from remote control 960 is performed. In the case of the example of drawing 117 , the document which the user set will be read and it will transmit to Mr. a of A company. At step S1193, the remote control identification information received from remote control 960, user identification information, their own object model identification information, and the important information related to performed action are transmitted to a server 1041. In the case of the example of drawing 117 , it is a document by directions of Mr. Tom. The sending document itself which is the important information in connection with this data for the data sent to Mr. a is transmitted to a server 1041 with sending time of day.
[0361] Drawing 120 is a flow chart in the example which saves as hysteresis the actuation and action which the user performed, and time of day with the important information in connection with it which shows the example of processing by the side of a server. Moreover, drawing 121 is drawing showing an example of the updated hysteresis information as a result of this processing. The flow of processing by the side of a server is explained.
[0362] At step S1201, it stands by until there is a demand signal from an object model. At step S1202, the important information in connection with the received data is saved. Document with which Mr. Tom directed transmission in the case of the example of drawing 117 File ABC It saves by carrying out.
[0363] At step S1203, hysteresis information is updated according to the received data. the case of the example of drawing 117 -- Mr. Tom -- 1996/7/5 -- having sent the document to Mr. a of A company is recorded on 10:00 with the file name saved at step S1201. the data that drawing 121 is the example of the updated hysteresis information, and Mary copied the 10 section of FileXYZ(s) to 1996/7/3 -- 1996/7/5 -- the data that Mr. Tom transmitted File ABC to Mr. a of A company are added to 10:00. UI that processing was completed correctly is sent to the remote control which the remote control identification information received from the object model shows at step S1204.

[0364] [Operation gestalt 41] Fig. 122 and 123 is drawing showing the example which performed hysteresis and operated it to origin, after saving [action / which the user performed / the actuation and action] time of day as hysteresis with the important information in connection with it.
[0365] Here, after saving [action / which the user performed / the actuation and action] time of day as hysteresis with the important information in connection with it, it explains flowing when having performed hysteresis and operating it to origin.
** Direct that remote control 960 shows Mr. Tom's hysteresis toward a copy machine 962.
** A copy machine 962 tells that it shows Mr. Tom's hysteresis as the server 1041 which manages hysteresis based on these directions.
** A server 1041 sets to UI only hysteresis with which Mr. Tom was concerned with reference to hysteresis information, send to a copy machine 962, and a copy machine 962 transmits this UI to remote control 960.
** Mr. Tom chooses specific data out of the hysteresis currently displayed on remote control 960, and he directs action. Since the data sent to A company are before needed anew in the case of this example, the data of "having transmitted File ABC to Mr. a of A company" tend to be chosen out of hysteresis, and it is going to pick out that data from the copy machine 962 in front of an eye by directing a "copy" as action.
** A copy machine 962 tells directions of "copying File ABC" from a user to a server 1041.
** A server 1041 sends a corresponding document "File ABC" to a copy machine 962.
** A copy machine 962 prints the document received from the server 1041.
[0366] Although he was trying to choose the data of "having transmitted File ABC to Mr. a of A company" out of hysteresis in the above in order that a user might pick out required data from the copy machine 962 in front of an eye When the name "File ABC" of a document to output is known, it replaces with hysteresis and the list of files is displayed, a file name can be chosen from the inside, or a direct file name can also be inputted.
[0367] Moreover, it can also be aimed at the document saved at PC on a network although considered as the document which saved the document to take out above at the server 1041 while transmitting by FAX963.
[0368] Drawing 124 is drawing showing the example of a configuration of the remote control 960 used with the above operation gestalt.
[0369] 1241 is a display and displays with liquid crystal. Furthermore, the resistance film is attached to the display 1241 and information can be inputted using a pen 1242. This input may choose the carbon button on a screen with a pen 1242. Furthermore, a character recognition function can be prepared and the alphabetic character written with the pen 1242 can also be inputted.
[0370] The inputted information can be transmitted to other devices from the communications department 1243. Moreover, the interior of equipment is equipped with the storage section 1245 with CPU1244 for control, and the information received from input or the communications department 1243, the hysteresis of actuation, etc. are memorized. A SRAM card, SIMM, HDD, etc. can be used as the storage section 1245. Moreover, it is dc-battery actuation and is dripproof.
[0371] Drawing 125 is drawing showing other examples of a configuration of the remote control 960 used with the above operation gestalt.
[0372] 1251 is a display and displays by liquid crystal or CRT. Furthermore, a touch panel can also be added to a display 1251 as an option. Thereby, information can be inputted using a finger, a pen, etc. 1252 is the input section which inputs information by actuation of a carbon button. The inputted information can be transmitted to other devices from the communications department 1253. Moreover, the interior of equipment is equipped with the storage section 1255 with CPU1254 for control, and the information received from input or the communications department 1253, the hysteresis of actuation, etc. are memorized. A SRAM card, SIMM, HDD, etc. can be used as the storage section 1255.
[0373] Remote control of drawing 125 can be used as carbon button remote control, even if it removes the storage section 1255. Moreover, even if it removes the communications department

1253, it can be used as an electronic memo pad (PC). Moreover, using a touch panel, even if it removes the input section 1252, as shown in drawing 124, it can be used.
[0374] Drawing 126 is drawing showing other examples of a configuration of the remote control 960 used with the above operation gestalt.
[0375] 1261 is a display and displays with liquid crystal. 1262 is the input section which inputs information by actuation of a carbon button. The inputted information can be transmitted to other devices from the infrared communications department 1263. Moreover, the interior of equipment is equipped with the storage section 1265 with CPU1264 for control, and the information received from input or the infrared communications department 1263, the hysteresis of actuation, etc. are memorized. A SRAM card, SIMM, HDD, etc. can be used as the storage section 1255. Furthermore, PCMCIA slot 1266 is formed, for example, a PCMCIA card is inserted, it becomes connectable according to a PCMCIA bus, and two communication paths can be used. Moreover, the infrared communications department 1263 is only transmission by luminescence, and you may make it reception use a PCMCIA bus. Of course, it is not necessary to use connection by the PCMCIA bus.
[0376] In addition, in the range which can realize the function of the above-mentioned operation gestalt, even if it applies this invention to the system which consists of two or more devices (for example, the body of a computer, an interface device, a display, etc.), it may be applied to the equipment which consists of a single device. Moreover, it aims at operating various devices so that the function of the operation gestalt mentioned above may be realized. To the computer in the equipment connected with these various devices, or a system The program code of the software which realizes the function of the operation gestalt mentioned above is supplied, and the supplied program is followed. By computer (or CPU and MPU) of the system or equipment What was carried out by operating said various devices is contained in the range of the invention in this application. Moreover, that program code itself and a means, for example, the storage which memorized this program code, to supply that program code to a computer will constitute this invention by realizing the function of the operation gestalt which the program code itself by which reading appearance was carried out from the storage in this case mentioned above.
[0377] As a storage for supplying this program code, a floppy disk, a hard disk, an optical disk, a magneto-optic disk, CD-ROM, CD-R, a magnetic tape, the memory card of a non-volatile, ROM, etc. can be used, for example.
[0378] Moreover, also when the function of the operation gestalt mentioned above by performing the program code which the computer read is not only realized, but it collaborates with OS (operating system) which is working on a computer, or other application software based on directions of the program code and the function of the above-mentioned operation gestalt is realized, it cannot be overemphasized that this program code is contained in the range of the invention in this application.
[0379] Furthermore, after the program code by which reading appearance was carried out from a storage is written in the memory with which the functional expansion unit connected to the functional add-in board inserted in the computer or a computer is equipped, it is needless to say in being contained also when the function of the operation gestalt which performed a part or all of processing that the CPU with which the functional add-in board and functional expansion unit are equipped based on directions of the program code is actual, and mentioned above by the processing is realized.
[0380] What is necessary is just to store in the storage the program code corresponding to the flow chart explained previously, when applying the invention in this application to the above-mentioned storage.
[0381]
[Effect of the Invention] As explained above, according to this invention, the burden of actuation of the user for attaining the object of processing can be mitigated, the optimal available device resource can be utilized, and it is effective in unnecessary or unsuitable processing being avoidable.

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention] This invention relates to the information processing system to which two or more equipments were connected, and its approach.

[Translation done.]

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PRIOR ART

[Description of the Prior Art] In order to perform various processings in an environment with two or more available equipments, the equipment with which the user was suitable for each processing is chosen, and it is common to order activation of the processing corresponding to selected equipment.
[0003] For example, in order to transmit the information created by computer, and the information read with the scanner in the form recorded on the distant partner by paper, the partner's printer connected through a network etc. can be specified, and it can print by the specified printer.

[Translation done.]

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EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, according to this invention, the burden of actuation of the user for attaining the object of processing can be mitigated, the optimal available device resource can be utilized, and it is effective in unnecessary or unsuitable processing being avoidable.

[Translation done.]

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, in the above-mentioned Prior art, processing a certain directed equipment was instructed to be by failure, poor ability, etc. was not completed at all, or when it was not able to do thoroughly, there was a problem that the processing the equipment was ordered to perform could not attain as a user's object. In order to have solved this, the user needed to check the processing result and needed to order other equipments anew to perform the same processing or additional processing.
[0005] Moreover, in order to attain the object of processing, even if there was equipment more suitable than the equipment which the user directed, it has processed only with the equipment which the user directed.
[0006] Moreover, it may be processing for a specific user depending on processing, and may be unnecessary or unsuitable to a current user.
[0007] The object of this invention can solve such a conventional technical problem, can mitigate the burden of actuation of the user for attaining the object of processing, can utilize the optimal available device resource, and is to offer the information processing system which can avoid unnecessary or unsuitable processing, and its approach.

[Translation done.]

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MEANS

[Means for Solving the Problem] A receiving means to receive information to an information processor according to this invention in order to solve the above-mentioned technical problem, An analysis means to analyze the received information, and a decision means to opt for the processing which should be performed based on the analysis result of this analysis means, An activation means to perform said processing for which it opted, and a recognition means to recognize a situation, It has a decision means to judge whether said processing should be performed with said activation means based on said analysis result and said situation, and a termination means to stop activation of said processing by said activation means when [which should be performed with this decision means] it is judged that it does not come out.
[0009] Moreover, the receiving process which receives information to the information processing approach according to other modes of this invention, The analysis process which analyzes the received information, and the decision process which opts for the processing which should be performed based on the analysis result of this analysis process, The activation process which performs said processing for which it opted, and the recognition process which recognizes a situation, It has the decision process which judges whether said processing should be performed according to said activation process based on said analysis result and said situation, and the termination process which stops activation of said processing by said activation process when [which should be performed according to this decision process] it is judged that it does not come out.
[0010]
[Embodiment of the Invention]
[Operation gestalt 1] Drawing 1 is system configuration drawing of this operation gestalt, and expresses two or more equipments connected to the network. In this, in a personal computer (PC) and 102, a scanner and 103 express a color printer and, as for 101, 104 expresses the monochrome printer.
[0011] With this operation gestalt, in the system (when it is drawing 1 , it connects with the network) to which two or more equipments were connected, when activation of JOB is directed to a certain equipment, he understands what JOB which should analyze the object and he should perform from the content of JOB is. As a result of understanding, information required for JOB which should be performed is acquired and performed. In case JOB is performed, when there are technique more effective than the directed content and another equipment, processing is directed to other equipments or advice for proposing the technique to a user is performed.
[0012] Moreover, it also performs refusing the directions itself depending on the content of JOB. Here, there is new JOB generated by itself at the activation directions from a user's alter operation and other devices, the result of having analyzed these JOB(s), and the time of an idling in the class of JOB. For example, in printing a document by another printer as reading from a scanner, the following JOB(s) occur.
** The read and analysis processing of a document in which the analysis ** scanner of the content of the directions to a scanner analyzed and generated the directions (and thing for which the document was set) received from the user about the document which the user set to the scanner, The directions processing ** scanner to the printer for printing the read document

generated according to directions processing. the printing processing whose printing directions ** printer to a printer analyzed and generated the printing directions received from the scanner — the detail of such a generation management method of JOB is explained henceforth [the operation gestalt 11].

[0013] Below, the procedure of performing these processings with two or more equipments is concretely explained based on a drawing.

[0014] Drawing 2 is a functional block diagram for processing this operation gestalt. The JOB receipt section 201 receives JOB from a user or other equipments. Received JOB is registered into the JOB table 202. The JOB analysis section 203 takes out and analyzes JOB registered into the JOB table 202. The other devices information acquisition section 204 acquires an attribute, a current condition, etc. of other connected devices. The situation seal step 207 judges a situation from the current condition of other devices etc.

[0015] The optimal planning section 210 stands the optimal plan about activation of JOB. In the JOB activation decision section 206, when performing whether JOB is performed or not, it judges performing by other devices whether it performs with self-equipment etc. When performing by other devices, activation of JOB is directed to other devices by the directions section 205 to other devices. When performing with self-equipment, it performs in the JOB activation section 209. The advice section 211 of activation notifies a user of having directed activation to an activation result or other devices etc.

[0016] Drawing 3 is hardware configuration drawing of each equipment for realizing processing of this operation gestalt.

[0017] I/O301 performs I/O with the equipment exterior. CPU302 controls each part of equipment while performing a program. ROM303 memorizes a program, fixed data, etc. which should perform CPU302 corresponding to each flow chart mentioned later. RAM304 memorizes temporarily various variables generated during activation of processing, such as an attribute, a current condition, etc. of the JOB table 202 and other devices by which it acquired in the other devices information acquisition section 204, medium data, etc. Moreover, a program is loaded to RAM304 from the equipment exterior etc., and you may make it make it memorize.

[0018] Drawing 4 is the flow chart which showed the flow of processing of this operation gestalt. First, the content of the JOB table is initialized at step S109. At step S110, it judges whether JOB was inputted by confirming whether there is new JOB generated by itself at the input JOB from the input JOB from a user, the device which can detect a system, the result of having analyzed these JOB(s), and the time of an idling. If inputted, JOB inputted into the JOB table will be added at step S111. If it investigates whether there is JOB on a JOB table and is shown in it at step S112, JOB will be taken out at step S113. At step S114, the given directions are analyzed and the object of JOB is analyzed from the information. At step S115, JOB which should be performed further is probed from the analyzed directions. At step S116, JOB probed at step S115 is registered.

[0019] At step S117, it investigates whether there is non-performed JOB, and if it is, it will progress to step S118. At step S118, when JOB judges whether activation is possible and is judged to be impossible, return and JOB which must newly be performed are probed to step S115. At step S119, JOB is performed and it returns to step S117.

[0020] For example, it will be analyzed, if it is a user's object that a document [finishing / printing] comes to hand when a user gives directions so that a document may be printed by another printer as reading from a scanner. Moreover, the read and analysis processing of a document in which the scanner analyzed and generated the information received from the user, and the directions processing to the printer for printing the read document are probed as JOB in this case. Explanation of such detailed flow is explained henceforth [the operation gestalt 11] based on an example.

[0021] Drawing 5 is drawing having shown the flow of the processing which chooses the optimal printer from two or more printers, and performs printing.

[0022] In drawing 5 , the instruction from a host computer, an instruction of the natural language which the user as directions from remote control etc. emitted with voice, and the bar code or text read in the cover page is analyzed, and JOB information is transmitted and inputted.

[0023] The device which received the transmitted JOB information analyzes JOB, outputs by choosing automatically the printer which can perform processing suitable for JOB, and when there are advice directions further, it chooses and notifies the optimal media according to an advice place. Therefore, to a demand of a user, with reference to the configuration of a printer, a suitable printer is chosen and printing is performed. According to a situation, it also performs distributing processing to two or more printers in that case. Moreover, when there are advice directions, the optimal media for advice are chosen and the printer name which performed printing, termination of printing, etc. are notified. As a demand of a user, there are a paper size, a quality of printed character, a color, a time limit (for example, I want to print by 5:00), etc. Moreover, as a configuration of a printer, there are a class of printer, the number, the engine performance, a current condition (normal actuation is carried out, there is a queue of the waiting for printing, or forms and toners are insufficient), etc. As media for advice, a user's terminal, voice reports, tell by telephone, a message is sent to a pocket bell, or it transmits by the electronic mail or FAX by using the content of advice as a document.
[0024] Below, according to the flow chart of drawing 4 , the situation that each equipment processes processing of drawing 5 is explained.
[0025] First, when the directions which are step S110, for example, are urgent and will output a certain document by 5:00 to a host computer are able to be given, JOB is added to a JOB table at step S111. At step S113, the directions to which JOB was given at ejection and step S114 are analyzed, and the object of JOB is analyzed from the information. At step S115, following JOB is probed from the analyzed directions.
[0026] ** Acquire the information (a paper size, a quality of printed character, color document, etc.) for choosing the printer suitable for an output from the document which should be outputted, and information, such as the time limit.
** Choose the printer suitable for the information on ** from the connected printer.
** Inspect whether the selected printer has a failure in an output.
** Output to the printer chosen automatically.
** Notify having performed the selected printer and the output.
[0027] At step S116, JOB probed at step S115 is registered. The following is repeated until it is judged that all probed JOB(s) were lost at step S117. At step S118, when JOB judges whether activation is possible and is judged to be impossible, JOB which must newly be performed is probed. At step S119, probed JOB is performed in order.
[0028] [Operation gestalt 2] Drawing 6 is drawing which explains the case where a remote controller (remote control) is used, as an approach of directing to various devices.
[0029] This remote control 605 is equipped with a display, only approaches devices, such as printers 601 and 602, and FAX603, PC604, can display the control panel and information corresponding to that device, and can give and control directions to that device. Furthermore, the device which is distantly separated from the device near the remote control 605 through a network is also controllable.
[0030] Moreover, the monitor of the status of each device can be carried out, and remote control 605 can display it, and can also acquire the status of the device on a network which separated distantly through the device near the remote control 605.
[0031] [Operation gestalt 3] Drawing 7 is drawing showing the example at the time of reading a document from a scanner and transmitting to a specific printer.
[0032] After a document is read from a scanner 701, a user specifies a transmission place (using voice etc.). Or the transmission place is specified as the cover page and a transmission place is determined automatically. Thus, when it is in the condition which cannot print a transmission place as a transmission place as a result of acquiring the condition of ** transmission place after the monochrome printer A702 is determined, it transmits to another printer (for example, monochrome printer B703) automatically, and prints.
** When the printer specified as a transmission place cannot print (from conditions, such as a color and a paper size), transmit only the page to other printers (for example, if it is a color color printer C704).
** In the case of the document of large quantity pagination, print by dividing into some printers.

** When the destination is specified as the transmission place, transmit to the destination automatically.
[0033] [Operation gestalt 4] Drawing 8 is drawing showing the example at the time of transmitting to the specific printer which reads a document from a scanner and cannot manage a scanner (by reasons of network domains differing).
[0034] After a document is read from the scanner 701 in Austin, a user specifies a transmission place (using voice etc.). Or the transmission place is indicated by the cover page by the character string or the bar code, it is read, and a transmission place is automatically determined by recognition and interpreting. Thus, after the monochrome printer A702 which is in Tokyo as a transmission place is determined and a document is actually sent to the monochrome printer A702, in the case of the condition which ** monochrome printer A702 cannot print by itself, it transmits to another printer (monochrome printer B703), and prints.
** When the monochrome printer A702 cannot print the document received (from conditions, like that a color page is included and paper sizes differ), transmit only the received whole document or the page which cannot be printed to other printers (for example, if it is a color color printer C704).
** While the monochrome printer A702 prints by itself in the case of the document of large quantity pagination, print by dividing into other printers.
** The monochrome printer A702 transmits to the destination automatically, when the destination is specified as itself.
[0035] The point of difference between the operation gestalt 3 and the operation gestalt 4 has the printer 702 which received the document from the scanner 701 in the point of determining the destination, by the operation gestalt 4 to the scanner 701 having determined the transmission place with the operation gestalt 3.
[0036] [Operation gestalt 5] Drawing 9 is drawing showing the example at the time of transmitting to the specific printer which reads a document from a scanner and cannot manage a scanner for the reasons of network domains differing.
[0037] After a document is read from the scanner 701 in Austin, a user specifies a transmission place (using voice, a keyboard, etc.). Or the transmission place is indicated by the cover page by the character string or the bar code, it is read, and a transmission place is automatically determined by recognition and interpreting. Thus, after the monochrome printer A702 which is in Tokyo as a transmission place was determined and a document is actually sent to the monochrome printer A702, it is transmitted to the personal computer 705 in which more advanced processing is possible. Consequently, a personal computer 705 judges that this document is an urgent document (from the alphabetic character a covering letter "is urgent"), and if schedule data etc. show where the reception hand of a document is now, it will transmit it to that location (for example, Atsugi). the destination is not a printer but FAX D706 in that case — etc. — if media differ, media conversion will be performed and it will transmit.
[0038] [Operation gestalt 6] Drawing 10 is drawing showing the example at the time of transmitting to the specific printer which reads a document from a scanner and cannot manage a scanner for the reasons of network domains differing.
[0039] After a document is read from the scanner 701 in Austin, a user specifies a transmission place (using voice etc.). Or the transmission place is indicated by the cover page by the character string or the bar code, it is read, and a transmission place is automatically determined by recognition and interpreting. Thus, after the monochrome printer A702 which is in Tokyo as a transmission place was determined and a document is actually sent to a printer A702, it is transmitted to the personal computer 705 in which more advanced processing is possible. Consequently, a personal computer 705 can recognize the reception hand of a document, can create an advice sentence, and can notify arrival of a document to the reception hand of a document by telephone 707.
[0040] [Operation gestalt 7] Drawing 11 is drawing showing the example in the case of notifying the condition of a printer.
[0041] If PC1102 acquires the status of a printer 1103 through a network and change of the status, such as an error and generating of an event, is detected, according to the content, it will

determine advice places, such as a user or a manager, and will notify using the media corresponding to the determined advice place. For example, notify to the terminal 1101 of a user or a manager by E-mail, a telephone 1104 is contacted by phone, or a message is transmitted to a pocket bell 1105.
[0042] Thereby, in the example of drawing 10 , it may replace with a telephone 707 and an electronic mail and a pocket bell may notify reception of a document.
[0043] [Operation gestalt 8] With this operation gestalt, when the equipment to which JOB was directed performs JOB by itself, it does not carry out as it is, but before performing the content of JOB, depending on the class and conditions of JOB, it notifies and checks at a user, or it cancels JOB judged to be unnecessary for a user.
[0044] Drawing 127 is the information which specified whether an advance notification would be performed corresponding to the class and conditions of JOB.
[0045] Drawing 12 is a flow chart showing the procedure of this operation gestalt.
[0046] First, before performing directed JOB at step S120, it judges in analyzing the content indicated that the assignment information on the advance notification corresponding to the class and conditions of JOB of drawing 127 in whether a user should be notified of the processing to perform or the content is referred to, or the operation gestalt 29 explains by the cover page etc. When notifying in advance, the processing and the content which progress to step S122 from step S121, and are performed are notified. Furthermore, if there is need at step S123, after getting authorization of activation from a user, JOB will be performed at step S124.
[0047] On the other hand, when not notifying in advance, it judges whether it is step S125 and is required JOB for a user, if required, JOB will be performed at step S127, but if unnecessary, JOB will be canceled at step S128.
[0048] Next, when the content of JOB is informational filing, before a system performs informational filing, the content is analyzed, and the example which performs processing which tells a user the content is explained.
[0049] Drawing 13 is filing processing and is drawing showing the case where the information to file is told to a user in advance. As for a file storage unit and 1302, 1301 is [a scanner and 1303] user terminals.
[0050] Processing of the scanner 1302 in drawing 13 is explained according to the flow chart of drawing 1212 .
[0051] At step S120, since it is JOB which files information, with reference to the assignment information on drawing 127 , it judges that the information filed before filing is notified, and information is scanned. Processing is passed to step S122 in order to notify the information to file at step S121. At step S122, the scanned information is notified to a user terminal 1303 through a network. JOB of filing is performed at step S124.
[0052] Next, when the 1st sheet is received and the content is analyzed, when there is receipt information, and judged as the information which is not related to a user at all, the example which does not receive the information after it is explained.
[0053] Drawing 14 is drawing in the case of judging whether it is required [from the first page] in a lot of received data, or unnecessary, and canceling the information after degree page. 1401 is a receiving side and 1402 is PC of a transmitting side.
[0054] Processing of PC1401 in drawing 14 is explained according to the flow chart of drawing 12 .
[0055] As a result of referring to the assignment information on the advance notification corresponding to the class and conditions of JOB of drawing 127 at step S120, since it is only informational reception, it is judged that an advance notification does not carry out. Processing is passed to step S125 at step S121. Since the page of the beginning of the received information is analyzed and it is with "information to a general-affairs person in charge" at step S125, it is the information which is not related to a user, and it is judged that reception of this information is unnecessary. Processing is passed to step S128 at step S126. At step S128, while canceling the 1st sheet which received, processing is ended without receiving the information after the 2nd sheet.
[0056] [Operation gestalt 9] Drawing 15 is a flow chart which shows the procedure of this

operation gestalt. With this operation gestalt, the equipment to which activation of processing was directed judges whether it should perform for equipment itself, or it should perform with other equipments, and directs processing to activation or other equipments in person according to a decision result.

[0057] First, in step S150, if whether JOB was inputted judges and it is inputted, JOB inputted into the JOB table will be added at step S151. If it investigates whether there is JOB on a JOB table and is shown in it at step S152, JOB will be taken out at step S153. At step S154, the given directions are analyzed and the object of JOB is analyzed from the information. The own situation of equipment is judged at step S155. At step S156, the situation of other equipments according to the object of JOB is judged.

[0058] If it is optimal to perform by oneself based on the situation of equipment itself and other equipments, it progresses to step S158 from step S157, and it will determine to perform by oneself and JOB will be performed by itself at step S159. On the other hand, if performing by oneself is not optimal and the optimal equipment according to the object of JOB exists in others, it will progress to step S161 from step S160, and will determine to perform JOB with equipments other than oneself, and activation of JOB will be directed to other equipments according to the object at step S162. At step S163, a user is notified of having performed JOB with equipments other than oneself.

[0059] Moreover, if the equipment according to the object of JOB does not exist in others, it progresses to step S164 from step S160, the optimal approach which does not spoil the object of JOB is planned, and the plan is proposed to a user at step S165.

[0060] Drawing 16 is drawing showing the information flow of this operation gestalt.

[0061] When the user of PC101 gives JOB which outputs the information inputted with the scanner 102 to a printer 104, it judges that given JOB cannot perform a printer 104, and a printer 104 finds the printer 103 which can take other equipments and communication and can perform given JOB, when it is a printing malfunction. ** which does not perform JOB by itself but is performed by the printer 103 by this is judged, and JOB is directed to a printer 103. Furthermore, in order to tell a user the action which he performed, it notifies to PC101. Drawing 16 expresses this flow with an arrow head.

[0062] Below, in processing of drawing 16 , the flow chart of drawing 15 is met and the procedure which each equipment processes is explained.

[0063] First, if processing of a scanner 102 is explained, at step S150, information will be scanned and JOB which transmits information to a printer 104 will be received. At step S151, this JOB is added to a JOB table, and JOB is taken out at step S153. He understands that it is JOB which scans data and transmits at step S154. It judges that there is no problem in scanning the information which he was operating normally and was directed and transmitting at step S155.

[0064] At step S156, he understands that JOB cannot be turned to other equipments. At step S157, since performing by oneself is optimal, processing is passed to step S158. At step S158, it determines to scan information by oneself, information is scanned at step S159, and information is transmitted to a printer 104 in the path of 1 through a network.

[0065] On the other hand, by the printer 104, JOB which outputs the received information at step S150 is received. At step S151, this JOB is added to a JOB table. JOB is taken out at step S153. At step S154, he understands outputting the information of the user of PC101 to a form from the received information. At step S155, the toner is lost for itself, and it is judged that it cannot output to a form. At step S116, it communicates and it is judged that there is a printer 103 in which an output is possible whether there is any printer which can output the information otherwise received through the network (2 paths).

[0066] At step S157, since it cannot perform by itself, processing is passed to step S160. At step S160, it determines to transmit the information which received JOB of outputting information, to the printer 103 at step S161 since it was able to perform by the printer 103. It directs to output the information transmitted to a printer 103 at step S162 (3 paths). It notifies by E-mail having performed the output directed to PC101 of the user who directed JOB at step S163 by the printer 103 (4 paths). Drawing 128 is drawing showing an information flow in case

the equipment according to the object of JOB does not exist.
[0067] When the user of PC101 gives JOB which outputs the information inputted with the scanner 102 to a printer 104, the printer 103 according to the object of JOB that the printer 104 took other equipments and communication as printing with a toner piece is impossible, and the printer 104 was given is found, and the situation is judged. here, in order to propose to a user, it notifies to PC101 recovering the condition which can print printers 104 or 103 as optimal plan, and printing, since a printer 103 cannot be printed with a form piece, it is alike other than this and the printer according to the object of JOB does not exist. Drawing 128 expresses this flow with an arrow head.
[0068] Next, in processing of drawing 128 , the flow chart of drawing 15 is met and the procedure which each equipment processes is explained.
[0069] It is the same until a scanner 102 reads a document and transmits to a printer 104. By the printer 104, JOB which outputs the received information at step S150 is received. At step S151, this JOB is added to a JOB table. JOB is taken out at step S153. At step S154, he understands outputting the information of the user of PC101 to a form from the received information. At step S155, the toner is lost for itself, and it is judged that it cannot output to a form. At step S116, although it communicates, a printer 103 cannot print whether there is any printer which can output the information otherwise received through the network because of a form piece, either, and it is judged that a device suitable out of it does not exist.
[0070] At step S157, since it cannot perform by itself, processing is passed to step S160. At step S160, since the device which can perform JOB of outputting information does not exist, it progresses to step s164. At step s164, the optimal approach for realizing printing which is the object of JOB of outputting information is planned. Consequently, it is planned that it is the optimal approach to return to normal the status of the device which can be printed. At continuing step s165, it proposes to a user recovering the condition which can print the printer 104 of a toner piece, or the printer 103 of a form piece by Window as shown in drawing 129 according to the planned result. Then, change of a user's answer and the status of the printer itself is recognized as an input JOB, same processing is performed, and a user's object can be attained.
[0071] The detail of the planning described above is explained henceforth [the operation gestalt 11] based on an example.
[0072] [Operation gestalt 10] In processing of the operation gestalt 9 at steps S158 and S159 In judging that JOB is performed by itself, and performing JOB directed further, when performing The existence of the generating in question is analyzed in a detail like the procedure of drawing 17 mentioned later, and when it is judged that it is not suitable to carry out JOB activation depending on the environment and the situation of performing JOB, a problem may be notified, or JOB may be refused.
[0073] For example, the directions are refused, when there are directions of printing of a confidential document and it is not checked with an authorized user.
[0074] Drawing 17 is a flow chart showing the detailed procedure of JOB activation.
[0075] At step S170, it analyzes whether it is satisfactory to activation of directed JOB. If there is no problem in activation of JOB at step S171, JOB will be performed at step S175. If there is a problem, it will judge whether a user is notified of the generated problem at step S172, or activation of JOB is refused. When notifying, a problem is notified at step S174. On the other hand, when refusing, it is step S176, and JOB is refused and refusal is notified.
[0076] The case where it points so that the extra sensitive information which the user of PC101 read with the scanner 102 may be hereafter outputted to a printer 104 is explained based on drawing 15 and 17. Drawing 18 is drawing showing the example of the extra sensitive information to read.
[0077] First, with a scanner 102, at step S150, information is scanned and JOB which transmits information to a printer 104 is received. At step S151, this JOB is added to a JOB table. JOB is taken out at step S153. He understands that it is JOB which scans data and transmits at step S154. It judges that there is no problem in scanning the information which he was operating normally and was directed and transmitting at step S155.

[0078] At step S155, he understands that JOB cannot be turned to other equipments. At step S157, since performing by oneself is optimal, processing is passed to step S158. At step S158, it determines to scan information by oneself.
[0079] At step S170, as a result of scanning information, it analyzed that it was the confidential document for which an output is improper. There is a problem in activation of JOB at step S171. At step S172, it is judged that JOB (scan and output information) is refused. At step S173, since JOB is refused, processing is passed to step S176. Refusal of JOB is notified at step S176.
[0080] Moreover, similarly, when two or more users use the same system, the present user can be recognized from a login name etc. and directions of the output of the content other users' file can be refused. Moreover, if the user of the destination differs from the present user also when a document is received from not directions but the exterior from a user, the output of an incoming correspondence and advice of the data of reception are refusable, or processing can also be suspended until the user of the destination uses a system.
[0081] [Operation gestalt 11] The flow of processing is explained according to drawing 4 . First, a JOB table is initialized at step S109. It is confirmed whether, at step S110, there is any input from the input from a user, the device which can detect a system. Input analysis for analyzing the content inputted at the above-mentioned step at step S111 JOB It adds to a JOB table. It can perform at step S112. It confirms whether JOB exists, and if it is, it can perform at step S113. JOB is acquired. He understands the object which serves as a background which was going to perform JOB at step S114.
[0082] At step S115, from the condition of the inputted content, the device which can detect a system, and the information which the system knows now and others, the processing which it is considered is planned, and if required of step S116, new JOB will be added. Step S117- By S119, processing is performed according to the content planned at step S115. If lost, it will return to step S110 repeatedly, until JOB is lost.
[0083] A user The case where it is going to print <file A> is explained. Drawing 22 shall be drawing showing the content of <file A>, and the part of the picture of a vehicle shall be drawn in the color. Moreover, drawing 23 is drawing showing the structure of a system of this operation gestalt, a user performs printing directions from PC2301, the monochrome printer 2303 is set up as a usually used printer, and the color printer 2302 is also connected in addition to it.
[0084] JOB table initialization is carried out at step S109. JOB performed at step S111 when anything does not have an input is added to a JOB table (drawing 19). Moreover, drawing 20 At Window, it is a file name. If <file A> is specified and printing is chosen, at step S110, it will be judged that there is an input and it will progress to step S111. At step S111, as shown in drawing 21 , the input analysis JOB is added to a JOB table (drawing 21). It can perform at step S112. Since JOB exists, it progresses to step S113. It can perform at step S113. JOB: Input The analysis of "printing <file A>" is acquired. step S114 — an input — "printing <file A>" It is understood that the object is printing <file A>.
[0085] At step S115, it plans proposing printing to a color printer from the following condition and situation to a user.
- The part of a color is contained in <file A> (part of the vehicle of drawing 22).
- The usable color printer 2302 exists (drawing 23).
[0086] A user is asked to "Whether to print by the color printer" at step S119 (drawing 24). Simultaneously, JOB of a response in case there is no response of a user is added to a JOB table (drawing 25). And it returns to step S110.
[0087] If there is no intercadence force for 10 minutes, since JOB which can be performed exists by step S112 at step S110, it progresses to step S113. JOB which can be performed at step S113 : A response in case there is no response of a user is acquired.
[0088] At step S114, it is understood that the object of a response in case there is no response of a user is knowing whether your accepting a proposal. At step S115, it opts for what a user is asked using a telephone from the following condition and situation.
- The user knows the telephone number of the location which is now (schedule data of drawing 26 R> 6).
- It must print immediately (with the schedule data of drawing 26 , file A is used for a business

talk from 13:00).
[0089] A user is asked to "Whether to print by the color printer" at step S119 (drawing 27). Simultaneously, JOB of a response in case there is no response of a user is added to a JOB table (drawing 28). It returns to step S110.
[0090] step S110 — drawing 27 — like — a user — "— yes — well — " — ** — if it says, it will be judged that there is an input and it will progress to step S111. At step S111, it is the input analysis JOB. It adds to a JOB table (drawing 21). Since JOB which can be performed exists at step S112, it progresses to step S113. the JOB:input which can be performed at step S113 — " — it is and the analysis of "is acquired well. It inputs at step S114. "is and it is understood well that the object of "is that having accepted the proposal is shown.
[0091] It determines to send <file A> to a color printer 2302, and to print it at step S115. Step S118 <file A> is sent to a color printer 2302, and is printed. Simultaneously, JOB for the check of whether printing was completed normally is added to a JOB table (drawing 29). It returns to step S110.
[0092] If the printer status changes to input nothing at step S110 and changes to "those with printed document" "out of printing" like drawing 30 at step S112, since JOB which can be performed exists, it progresses to step S113. JOB which can be performed at step S113: Acquire the processing corresponding to the printer status. Since it is the semantics that the document with which the status "those with a printed document" was printed is left behind to the tray of a printer from the printer status table of drawing 31 at step S114, it is understood that the object is that a printed document passes into a user.
[0093] Since a user may come to picking by step S115 immediately, at it, it determines to wait. At step S116, JOB for the check of whether to have come the printed document to picking is added to a JOB table (drawing 32). It returns to step S110. There is no intercadence force at step S110 for 10 minutes. Since JOB which can be performed exists at step S112 supposing a printed document is left behind, it progresses to step S113. JOB which can be performed at step S113: Acquire a response in case there is a printed document. Since it is the semantics that the document with which the status "those with a printed document" was printed is left behind to the tray of a printer from drawing 31 R> 1 at step S114, it is understood that the object is that a printed document passes into a user. It is determined that a user judges that he forgets and it will notify "A printed document is in a color printer" at step S115 since a document is left behind for 10 minutes. At step S119, it notifies "A printed document is in BJC600" (drawing 33). Simultaneously, JOB of a response in case there is no response of a user in a JOB table, and JOB of the response at the time of coming a printed document to picking are added (drawing 34 R> 4). It returns to step S110.
[0094] There is no input at step S110. If the printer status changes from "those with a printed document" to "it is normal" like drawing 28, since JOB which can be performed exists at step S112, it progresses to step S113. JOB which can be performed at step S113: Acquire reexamination of JOB corresponding to those with a printed document. At step S114, it is understood that the object of reexamination of JOB corresponding to those with a printed document is deleting JOB which became unnecessary. It determines to delete JOB which is waiting for a user's response at step S115. JOB which is waiting for a user's response is deleted at step S119. Here, new JOB is not added. By the initial state, it returns to step S110.
[0095] Drawing 36 and 37 are drawings showing the rule of a plan and action.
[0096] A user is printing of drawing 20 . Window When it sets and a carbon button [printing] is pushed, with reference to plan & action of the table of drawing 36 , it is judged that a user's object is that the present condition becomes "those with a printed document." Furthermore, since "those with a printed document" is also the target "printed document acquisition" prerequisite, it is judged that a final user's object is "printed document acquisition."
[0097] A user is the question of drawing 24 or drawing 33 . When voice, mouse actuation, etc. perform actuation of approval manifestation or anti-mind manifestation to the inquiry by Window and the telephone of drawing 27 , it is judged that a user's objects are the approval manifestation to an inquiry and anti-mind manifestation.
[0098] In drawing 37 , the ultimate object of a system is the object achievement of a user. As a

prerequisite for that, the system must be stable. Moreover, a system understands ** user's object on it, and the ** object achievement is planned and it performs.
[0099] As well as normalizing a system at the time of trouble, for the cutback of cost, or evasion of destabilization of a system, when there is no need of performing, a power source is turned off for stability of a system.
[0100] Drawing 38 illustrates a part of drawing 37 intelligibly.
[0101] In order to understand a user's object, he understands an input, when there is an input. Moreover, corresponding to "printed document acquisition" of the object of the user of drawing 36 , what "a printed document is passed to a user for" exists as an object of a system.
[0102] In order to pass a user a printed document, it is a premise that the printed document exists and it is going to attain the object by teaching a user the location which has a document on it. Of course, although a user comes a document to picking or a document must be sent to a user by a certain approach in order for a user to acquire a document actually, in this system, in detail, the definition was not carried out but that a printed document is lost has judged that it is equivalent to the user having acquired.
[0103] On the other hand, in order for there to be a printed document, while there is a printing agency document, printing conditions are clarified, it is a premise that the printing environment where it corresponds exists normally, the printing environment where it corresponds on it is chosen, and printing is performed. What is necessary is just to draw up a printing agency document, in order for there to be a printing agency document. In order to clarify printing conditions, conditions should just ask a user an indefinite part. What is necessary is just to normalize a printing environment, when a printing environment is unusual in order for the printing environment to be normal. Moreover, RIPURANNINGU anew when there is no response from a fixed time amount user in order to acquire a user's volition.
[0104] The property of each device is stored in the memory in the server which has managed the memory or each device inside each device. Drawing 39 is the example of the property of each device. The status of each device is having in the interior of each device, and each device's sending actively, or returning passively according to the demand of other servers etc., and is told to other equipments.
[0105] In this system, a property is the thing of each device proper, and since it does not change, when the connection on the time of starting of a system or a network has modification, it is acquired. On the other hand, in the process which plans, the status is acquired if needed, or is acquired with a certain fixed time interval, and updating storage is carried out as information in internal memory.
[0106] [Operation gestalt 12] As well as the operation gestalt 11, when printing <file A>, it is the example of processing in case a color printer is Busy.
[0107] First, input: If there is "printing <file A>", this will be added to a JOB table and it will be understood that the object is printing. here, the part of a color contains in a document as a condition and a situation -- having -- **** -- an usable color printer -- Busy it is -- ** -- it carries out. Then, the plan to ask a user whether it waits or it prints in monochrome is stood until it stops being Busy. "Color printer is Busy. is it waiting measure? Or does it print by the monochrome printer? " -- a user is questioned. A user When "it waits" is chosen, it stands by until it stops being Busy.
[0108] [Operation gestalt 13]
Input: "<file A> was changed into <file A'>. When there is ", it is understood that renewal of a JOB table is the object. In a condition and a situation, <file A> prints on a JOB table. JOB It is. Then, it asks a user whether the object for printing is changed into <file A'>. The plan to say is stood. And the question "whether <file A'> is printed instead of <file A> before correction" is emitted.
[0109] [Operation gestalt 14] In the system (in this case, it connects with the network) to which, as for this operation gestalt, two or more equipments were connected When JOB is directed to each equipment, each equipment analyzes the object of JOB, and when it judges that it is better not to perform JOB activation with the equipment directed from its situation or the situation of a designating device, it is an operation gestalt for transmitting and performing JOB to other

equipments.
[0110] Drawing 41 is two examples showing the condition that two or more equipments are connected to the network, and (A) is the network of the environment where each equipment of a scanner 411 and printers 412 and 413 can judge each situation. (B) is the network of the environment where a scanner 411 cannot judge the situation of printers 412 and 413.
[0111] Drawing 42 is drawing showing the functional configuration for processing this operation gestalt. The JOB receipt section 421 receives JOB from a user or other equipments. Received JOB is registered into the JOB table 422. The JOB analysis section 423 takes out and analyzes JOB registered into the JOB table 422. The other equipment situation seal step 424 judges an attribute, a current condition, etc. of other connected equipments. The self-equipment situation seal step 427 judges the own attribute, own current condition, etc. of equipment.
[0112] The optimal planning section 425 stands the optimal plan about activation of JOB. In the JOB activation decision section 426, when performing whether JOB is performed or not, it judges performing with other equipments whether it performs with self-equipment etc. When performing with self-equipment, it performs in the JOB activation section 428. When performing with other equipments, JOB is transmitted to other devices by the JOB transfer section 429 to other equipments. The advice section 211 of activation notifies a user of having transmitted JOB to an activation result or other equipments etc.
[0113] Drawing 43 is the flow chart showing the flow of the processing for realizing this operation gestalt of Maine. First, at step S430, it judges whether JOB was inputted by confirming whether there is new JOB generated by itself at the input JOB from the input JOB from a user, the device which can detect a system, the result of having analyzed these JOB(s), and the time of an idling. If inputted, JOB inputted into the JOB table will be added at step S431. If it investigates whether there is JOB on a JOB table and is shown in it at step S432, JOB will be taken out at step S433. At step S434, the given directions are analyzed and the object of JOB is analyzed from the information. At step S435, it judges whether there is JOB to other equipments, and if it is, other equipments will be controlled by step S436. If there is nothing, self-equipment will be controlled by step S437.
[0114] Drawing 44 is a flow chart showing the flow of the processing when controlling other equipments, when processing to other equipments in the Maine processing at step S436.
[0115] The situation of the equipment specified in JOB is judged at step S440, and it judges whether a problem is to perform JOB with the specified equipment at step S441 based on this decision. If satisfactory, JOB will be transmitted to the specified equipment at step S442. The situation will be judged, if it investigates whether there is any equipment suitable for the JOB and is with equipments other than the specified equipment at step S443, when a problem is in activation with the specified equipment. Consequently, if there is equipment which can perform the JOB except the specified equipment, a user will be notified of having transmitted JOB to the equipment and having transmitted JOB at step S446 at step S445. The optimal plan which is step S447 and does not spoil the object of JOB with any equipments other than the specified equipment on the other hand when current utilization cannot be carried out, even if there is no equipment suitable for the JOB or it is is stood, it is step S448 and the plan is proposed to a user.
[0116] Drawing 45 is a flow chart which expresses the flow of processing in the case of processing with its own equipment with step S437 in the Maine processing.
[0117] At step S450, the situation of self-equipment is judged and it judges whether a problem is to perform JOB with self-equipment by step S451 based on this decision. If satisfactory, JOB will be performed at step S452. The situation will be judged, if it investigates whether there is any equipment suitable for the JOB and is with equipments other than self-equipment at step S453, when a problem is in activation with self-equipment. Consequently, if there is equipment which can perform the JOB except self-equipment, a user will be notified of having transmitted JOB to the equipment and having transmitted JOB at step S446 at step S445. The optimal plan which is step S447 and does not spoil the object of JOB with any equipments other than self-equipment on the other hand when current utilization cannot be carried out, even if there is no equipment suitable for the JOB or it is is stood, it is step S448 and the plan is proposed to a

user.
[0118] In (A) of drawing 41 , it pointed so that the information read from the scanner 411 might be outputted to a printer 412 in the path of A, but in the other equipment situation seal step 424 of a scanner 411, since drawing 46 discovered failure to the printer 412, it is drawing when outputting to a printer 413 through the path of B.
[0119] Although it points to drawing 47 so that the information read from the scanner 411 may be outputted to a printer 412 in the path of A in (B) of drawing 41 , and a scanner 411 tends to check the situation of a printer 412 Since it is in the distant location, in consideration of a network situation, information is transmitted unconditionally, and it is drawing since he is out of order, when a printer 412 transmits the received information (JOB) to a printer 413 in the path of B.
[0120] Drawing 46 and the process in which processing of 47 is performed are explained based on the flow chart of drawing 43 -45 below.
[0121] When an output JOB occurs from the scanner 411 of drawing 46 to a printer 412, processing of a scanner 411 is as follows.
[0122] First, at step S430, information is scanned and JOB which transmits information to a printer 412 is received. At step S431, JOB is added to a JOB table. JOB is taken out at step S433. At step S434, he scans data and understands that this JOB is JOB which transmits to the directed printer. It judges that there is JOB which performs information which he scanned with other equipments of outputting by the printer 412 at step S435. By this decision, processing is passed to other device control processing of drawing 44 at step S436.
[0123] The current condition of the directed printer 412 is acquired at step S440. Consequently, it judges that an output is impossible at a receipt and step S441 in the information which is breaking down from a printer 412. In this case, also when it is in the condition that outputs, such as a form piece and a toner piece, cannot be performed even if it is not [be / it] under failure for example, it thinks. At step S443, since it is impossible to perform JOB, from on a network, communication is taken and other same equipments which can perform JOB are searched with the printer 412 which is directed equipment. Since the printer 413 which can perform JOB was discovered at step S444, it opts for activation of JOB in a printer 413.
[0124] At step S445, the scanned information is transmitted to a printer 413. It notifies having changed JOB at step S446, to the partner who directed, since the thing except having been directed was performed. Since processing of directed JOB was ended above, it waits until the next JOB is inputted.
[0125] Next, processing when an output JOB occurs from the scanner 411 of drawing 47 to a printer 412 is explained.
[0126] With a scanner 411, at step S430, information is scanned and JOB which transmits information to a printer 412 is received. At step S431, JOB is added to a JOB table, and JOB is taken out at step S433. At step S434, he scans data and understands that this JOB is JOB which transmits to the directed printer. It judges that there is JOB which performs information which he scanned to other equipments of outputting by the printer 412, at step S435. By this decision, processing is passed to other device control processing of drawing 44 at step S436.
[0127] Although it is going to communicate with the directed printer 412 and is going to get to know the situation at step S440, since it is checked that it is in the location which the printer 412 left, it judges transmitting information regardless of the condition of a printer 412. At step S441, since the printer 412 is separated, it is judged as a satisfactory thing. At step S442, the information scanned to the printer 412 which is directed equipment is transmitted, and JOB is passed. Since processing of directed JOB was ended above, it waits until the next JOB is inputted.
[0128] On the other hand, by the printer 412, JOB which outputs the received information at step S430 is received. At step S431, JOB is added to a JOB table. JOB is taken out at step S433. He understands that it is JOB to which he outputs the received information at step S434. At step S435, it is judged that there is no JOB to other equipments. Processing is passed to self-device control processing of drawing 45 at step S437.
[0129] Its current condition is seen at step S450. At step S451, he judges that it is [current]

under failure and activation of JOB cannot be performed. In this case, also when it is in the condition that outputs, such as a form piece and a toner piece, cannot be performed even if it is not [be / it] under failure for example, it thinks. Communication is taken from on a network and the same equipments of other as themselves which can perform JOB are searched with step S453.

[0130] Since the printer 413 which can perform JOB was discovered at step S454, it opts for activation of JOB in a printer 413. At step S455, the information transmitted to the printer 412 is broadcast again to a printer 413. It notifies having changed JOB at step S456, to the partner who directed, since processing except having been directed was performed. Here, although the partner who directed was notified, since it is the location distant from the partner whom the output destination change directed, it may be made to notify to a recipient. Since processing of JOB directed above was ended, it waits until the next JOB is inputted. A printer 413 does not have a problem, and since JOB which outputs the received information can be performed, JOB is performed.

[0131] Although each equipment transmitted JOB automatically with the above operation gestalt, when a problem is in each equipment, it is also possible to attach and set up ranking so that a user may transmit JOB. For example, in this operation gestalt, although the user has inputted printing by the printer which specified the scanned document as JOB, when the printer specified at this time is unusable, the 2nd and 3rd printer which executes printing by proxy may be simultaneously set up into JOB. Thereby, as a device which fitted JOB in step s443 or step s453, the 2nd and 3rd set-up printer is chosen and the situation is judged. Moreover, when he is unusable, the 2nd and 3rd printer which executes printing by proxy may be set to the printer side which receives JOB conversely. At this time, though the 2nd and 3rd printer is set up by the JOB itself as mentioned above, the printer which received JOB can transmit JOB according to the assignment set as itself.

[0132] Moreover, when failure and actuation are impossible, even if it is except, when JOB of the spec. unsuitable for performing JOB, for example, a monochrome printer, is printing of the information on a color, or also when there is much waiting for JOB and it cannot process immediately, it can become the decision conditions which do not perform JOB.

[0133] [Operation gestalt 15] In performing JOB which outputs the emergency intelligence which the printer received to a user, this operation gestalt expresses the processing in the case of also considering the target user's schedule information as a decision ingredient which judges the problem of activation of JOB in the processing which judges the situation of the self-equipment of step S450 of drawing 45 .

[0134] Here, the user who should tell emergency intelligence is out and processing of the environment shown in drawing 48 in which the printer 413 connected to the going-out place in the network exists is explained.

[0135] In this case, in the procedure of drawing 43 , the object of JOB understands that it is connecting the received information to a user immediately at step S434. At step S435, since it is not JOB to other equipments at this event, processing is passed to step S437. Processing is passed to self-device control processing of drawing 45 at step S437.

[0136] At step S450, when judging the situation of self-equipment, a user's schedule directed as a transmission place is checked to equipment 414, and it is judged that he is out. At step S451, since a user is going out [be / it], for urgent communication, it is judged that a problem is in activation with self-equipment. It checks whether at step S453, the printer in which an output of information is possible is in a going-out place. Since it checked that there was a printer 412 in which an output is possible at step S454, it determines to output by the printer. At step S455, information is transmitted to a printer 412. At step S456, the user of the destination is notified of having transmitted JOB delivery origin.

[0137] Moreover, when it is judged that there are other equipments which a user uses, for example, PC, FAX, a telephone, etc. at step S443 by the case where there is no equipment in which the output same as the destination of JOB is possible, it is good though performed with the equipment in step S444. However, since information cannot be transmitted as it is, at step S445, the print-out to a printer is changed, and will make it an electronic mail document and a

FAX document, and it will transmit, or will change and output to speech information.
[0138] It is not necessary to notify having transmitted JOB anew using another media depending on the media used for an output, and can also tell simultaneously by the same media at step S446 at this time. For example, when transmitting a print-out using a telephone, the rear stirrup which told the print-out is considered as it is more smart to tell the data of having transmitted before.
[0139] In addition, it is step S447 and determines to use those equipments as optimal plan which does not spoil the object of JOB, and it is step S448 and you may make it propose the plan, without judging PC mentioned above, FAX, a telephone, etc. to be the devices suitable for JOB which should be performed by the printer at step S443.
[0140] [Operation gestalt 16] The procedure of this operation gestalt is shown in drawing 49 . Drawing 49 adds step S498-500 as processing when there is no JOB in the flow chart of drawing 43 . At step S498, by step S499, the current situation of other equipments of operation is investigated, and it judges whether others and equipment are covered with, without performing JOB which can be performed by itself, and when having collected, at step S500, the JOB is taken out, and it adds to the JOB table of self-equipment, and deletes from the JOB table of partner equipment. Thus, with this operation gestalt, JOB is found out and processed itself.
[0141] Drawing 50 is in the situation of performing this processing, and since JOB does not exist in a printer 412 but the printer 413 has ten waiting JOB(s), it is drawing showing the concept which a printer 415 takes out JOB of a printer 413 and processes with self-equipment.
[0142] The flow of processing of a printer 415 is as follows. At step S492, since there is no JOB, it passes processing to step S498. At step S498, the current situation of the printer 412 which are other equipments, and a printer 413 is investigated. It judges that JOB which can be performed by itself is in a printer 413 at step S499. At step S500, the JOB is added to ejection and its own JOB table from a printer 413. Furthermore, taken-out JOB is deleted from a printer 413. There is no input of JOB at step S490. Since JOB which added the point by itself exists at step S492, processing is passed to step S493 in order to perform JOB.
[0143] Henceforth, actuation for performing with one's equipment explained with the operation gestalten 14 and 15 is performed, and processing is ended.
[0144] [Operation gestalt 17] Drawing 51 is drawing having shown the flow of Print JOB in the system which used the equipment of this operation gestalt, and other information flows. In addition, the thick arrow head in drawing expresses the flow of Print JOB, and the arrow head of a dotted line expresses other information flows.
[0145] However, the parameters referred to at the time of printing of the document used as the object for printing and printing number of sheets, printing quality, printing size, etc. are included in the print JOB stated with this operation gestalt. Moreover, there are the statuses, such as normal and those without a form, and a schedule of the print JOB which the print JOB scheduling section has in the information on other during printing which each printer has.
[0146] In drawing 51 , with a client machine 510, once creating Print JOB in the print JOB creation section 512 and memorizing in the print JOB storage section 513, it is transmitted to the server machine 511 which manages a printer by the print JOB transmitting section 514 from the client machine 510 which created Print JOB.
[0147] In a server machine 511, when the parameters of reception and Print JOB have not set up the sent print JOB by the print JOB receive section 516, the print JOB automatic setting section 517 is passed, and delivery and when already being set up, the print JOB automatic modification section 518 is passed.
[0148] A non-set up printing parameter is set up in the print JOB automatic setting section 517, taking into consideration the urgency acquired from Print JOB, profitability, quality, etc. On the other hand, in the print JOB automatic modification section 518, changing the parameter already set up in the same processing is also realized. Thus, the print JOB set up or changed is registered into the schedule of the print JOB which the print JOB scheduling section 520 has, and reading appearance is carried out from there to the sequential print JOB transmitting section 519, or it is printed over the immediate printing JOB transmitting section 519.
[0149] Here, the status of usable printers acquired through the printer situation-recognition

section 515, such as under printing, normal, and those without a form, includes the print JOB automatic setting section 517 and the print JOB automatic modification section 518, and it is used for them in setting out or modification of Print JOB. Moreover, the printing schedule of the print JOB which the print JOB scheduling section 520 has is gone across and used similarly.
[0150] Moreover, as expressed to drawing 51 , it is also assumed that Print JOB flows in a different path. For example, when the machine which has managed the printer is the same as the machine which created Print JOB, it cannot pass along the print JOB transmitting section 514.
[0151] Drawing 52 is a flow chart showing the flow of processing of the print JOB automatic setting section 517. Automatic setting of the parameter is carried out so that it can print as quickly as possible and as economically as possible in the range which is satisfied with the print JOB automatic setting section 517 of the specified quality.
[0152] At drawing 52 , the factor which determines printing time amount and the amount of the toner used is first initialized as preparation of a simulation at step S520. Then, a quality decision variable is initialized by the quality peak price (for example, 5) at step S521, and printing time amount is simulated at step S522. It judges whether the printing time amount which it simulated fills an assignment value with step S523. When filled, it is step S524 and the amount of the toner used is simulated. It judges whether the amount of the toner used which it simulated fills an assignment value with step S525. When filled, it is step S526 and JOB is changed into the value of a current quality decision variable.
[0153] Step S When not filling the specified value with 523 or 525, one quality decision variable is reduced at step S527. Whether the specified quality is filled with step S528 judges, and if filled, processing will be returned to step S522. If not filled, it becomes an automatic setting impossible error and ends.
[0154] Drawing 53 is drawing showing the printing time amount and the amount of the toner used of per [used] character by the difference in the assignment quality of a printer A521 and a printer B522. The eternal value of each printer proper is sufficient as these values, and the value which measures the business time amount and the amount of the toner used of printing used performed in the past, and took the average from this measured value and which changes dynamically is sufficient as them.
[0155] Drawing 54 is drawing showing the parameter which the user specified as the content of the print JOB printed with this operation gestalt. In the system using this operation gestalt, it is called Print JOB in accordance with the content of the print JOB expressed with drawing 54 , and the active parameter. With this operation gestalt, in order to simulate printing time amount and the amount of the toner used, the amount of printings of Print JOB is explained as 500 characters by the number conversion of alphabetic characters. Moreover, the user should specify only urgency as less than 1 minute, and neither profitability nor quality should be specified with the default.
[0156] In the example of drawing 54 , starting of the print JOB automatic setting section 517 initializes the factor which determines printing time amount and the amount of the toner used in preparation of a simulation of step S520 first. For example, as it was defined as the table of drawing 53 , each printing time amount per character in the case of the minimum quality (= 1) of a printer A521 and a printer B522 is the an average of 100m step S and the 200m step S, and the amount of the toner used per character is an average of 100mg and 200mg.
[0157] Then, a quality decision variable is initialized by the quality peak price (for example, 5) at step S521, and printing time amount is simulated at step S522. For example, if one does not have the print JOB by which can print and the schedule is carried out by print JOB scheduling, printing can be started immediately and the latency time of a printer A521 and a printer B522 is unnecessary. Therefore, when 500 characters are contained in the print JOB for printing, by Printer A, it takes 250 seconds, and if it takes 500 seconds, it will simulate by Printer B.
[0158] Then, since less than [urgency 1 minute] which was specified with the assignment parameter of drawing 54 cannot be filled with step S523, one quality decision variable is reduced at step S527. Here, since quality is not specified with the assignment parameter of drawing 54 , processing is again returned to the simulation of the printing time amount of step S522. Since printing time amount becomes 50 seconds by the printer A521 only after quality is set to 1 of

the minimum quality as a result of repeating these processings, and urgency is fulfilled, quality is set as the value (= 1) of a quality decision variable, and is terminated normally.
[0159] Here, since the parameter which the user set up cannot be filled supposing it has set quality or more to two, it becomes an automatic setting impossible error and ends.
[0160] [Operation gestalt 18] Drawing 55 is a flow chart showing the flow of processing of the print JOB automatic modification section 518. In the range which is satisfied with the print JOB automatic modification section 518 of the urgency and profitability which were specified, an automatic change of the parameter is made so that it can print for high quality as much as possible. When it cannot be satisfied with on top of that of all assignment, assignment of the highest priority is satisfied, and other assignment is changed so that closely [assignment] as much as possible.
[0161] Drawing 56 is drawing showing the parameter which the user specified as the content of the print JOB printed with this operation gestalt. In the system using this operation gestalt, it is called the content of the print JOB expressed with drawing 56 with Print JOB in accordance with the active parameter. With this operation gestalt, in order to simulate printing time amount and the amount of the toner used, the amount of printings of Print JOB is explained as 500 characters by the number conversion of alphabetic characters. Moreover, although the user set up all the parameters, it is specified also in it that quality is top priority.
[0162] In drawing 55 , starting of the print JOB automatic modification section 518 first initializes the factor which determines printing time amount and the amount of the toner used in preparation of a simulation at step S550. For example, as it was defined as the table of drawing 53 , each printing time amount per character in the case of the minimum quality (= 1) of Printer A and Printer B is the an average of 100m step S and the 200m step S, and the amount of the toner used per character is an average of 100mg and 200mg.
[0163] Then, a quality decision variable is initialized by the quality peak price (for example, 5) at step S551, and printing time amount is simulated at step S552. For example, if one does not have the print JOB by which can print and the schedule is carried out in the print JOB scheduling section 520, printing can be started immediately and the latency time of a printer A521 and a printer B522 is unnecessary. Therefore, when 500 characters are contained in the print JOB for printing, by the printer A521, it takes 250 seconds, and if it takes 500 seconds, it will simulate by the printer B522.
[0164] Then, since less than [urgency 1 minute] which was specified with the assignment parameter of drawing 56 cannot be filled with step S553, one quality decision variable is reduced at step S556. Since assignment of the quality of the assignment parameter of drawing 56 is filled with step S557, processing is again returned to the simulation of the printing time amount of step S552. As a result of repeating these processings, even if it becomes the quality (= 3) specified by a user, printing time amount is 150 seconds by the printer A521, and cannot fulfill urgency. Then, if a quality decision variable is reduced by one, since it becomes impossible to fill the quality specified by a user with step S557, it progresses to step S558, and quality will have it confirmed whether to be an assignment parameter of the highest priority, and will change and terminate Print JOB normally with step S556 in the specified quality by step S560 the case of the highest priority.
[0165] Here, since printing time amount will become 50 seconds by Printer A only after quality is set to 1 of the minimum quality and urgency will be fulfilled supposing urgency is top priority, quality is set as the value (= 1) of a quality decision variable, and is terminated normally.
[0166] [Operation gestalt 19] Drawing 57 is drawing having shown the flow of Print JOB in the system which used the equipment of this operation gestalt, and other information flows. In addition, the thick arrow head in drawing expresses the flow of Print JOB, and the arrow head of a dotted line expresses other information flows.
[0167] However, the parameters referred to at the time of printing of the document used as the object for printing and printing number of sheets, printing quality, printing size, etc. are included in the print JOB stated with this operation gestalt. Moreover, there are the statuses, such as normal and those without a form, and a schedule of the print JOB which print JOB scheduling has in the information on other during printing which each printer has.

[0168] In drawing 57 , with a client machine 510, once creating Print JOB in the print JOB creation section 512 and memorizing in the print JOB storage section 513, it is transmitted to the server machine 511 which manages a printer by the print JOB transmitting section 514 from the client machine 510 which created Print JOB.
[0169] In a server machine 511, the sent print JOB is passed to reception and the print JOB interpretation section 571 by the print JOB receive section 516. In the print JOB interpretation section 571, the directions from a user included in the received print JOB are interpreted, and it changes into information, such as a parameter which can process a system. When the parameters of Print JOB have not been set up, the print JOB automatic setting section 517 is passed, and delivery and when already being set up, the print JOB automatic modification section 518 is passed.
[0170] A non-set up printing parameter is set up in the print JOB automatic setting section 517, taking into consideration the urgency acquired from Print JOB, profitability, quality, etc. On the other hand, in the print JOB automatic modification section 518, changing the parameter already set up in the same processing is also realized. Thus, the print JOB set up or changed is registered into the schedule of the print JOB which the print JOB scheduling section 520 has, and reading appearance is carried out from there to the sequential print JOB transmitting section 519, or it is printed over the immediate printing JOB transmitting section.
[0171] Here, the status of usable printers, such as normal and those without a form, includes the print JOB automatic setting section and the print JOB automatic modification section 518 during printing acquired through the printer situation-recognition section 515, and it is used for them in setting out or modification of Print JOB. Moreover, the printing schedule of the print JOB which the print JOB scheduling section 520 has similarly is also gone across and used.
[0172] Moreover, as expressed to drawing 57 , it is also assumed that Print JOB flows in a different path. For example, when the machine which has managed the printer is the same as the machine which created Print JOB, it cannot pass along the print JOB transmitting section 514.
[0173] With this operation gestalt, as shown in drawing 58 , setting out of the parameter of Print JOB is vaguely set up using natural language. Drawing 130 is drawing having shown the semantics which the character string in a parameter setup expresses, and a demand item required in order to complete the semantics corresponding to the input string by natural language. In the print JOB interpretation section 571, it interprets as follows with reference to the semantics corresponding to the input string by the natural language which showed directions by the natural language passed as a print JOB active parameter in drawing 130 , and a demand item required in order to complete semantics.
[0174] Action used as a user's object which a character string "printing" to this character string under inputted natural language means is [printing]. Furthermore, the item demanded from there and a [object] are the contents of the print JOB inputted simultaneously itself, and [quality] and [number of sheets] will be expected if it should be specified in the part as which it is not interpreted under inputted natural language. then, a character string — "— the object for customers — an interpretation of one sheet and five-sheet" for members understands being specified that [number-of-sheets] 1 sheet is printed in high-definition [quality], and it prints [number-of-sheets] 5 sheet in free [quality].
[0175] Processing of the print JOB automatic setting section 517 and the print JOB automatic modification section 518 after this is the same as that of the operation gestalten 17 and 18.
[0176] [Operation gestalt 20] With this operation gestalt, as shown in drawing 59 , setting out of the parameter of Print JOB is performed based on the distribution place and number of sheets which were indicated by the document itself which is the content of the print JOB. In the print JOB interpretation section 571, the content of the print JOB is interpreted and it operates as follows. Action is printing. "The object for customers" interprets it as high-definition, and makes number of sheets one sheet. An "ABC project" is "an object for members", interprets it as grace being free, and number of sheets makes it five sheets (it has in advance the information that a user is the member of an ABC project.).
[0177] The processing after the print JOB automatic setting section 517 and the print JOB automatic modification section 518 after this is the same as that of the operation gestalten 17

and 18.
[0178] [Operation gestalt 21] Drawing 60 is drawing having shown the flow of Print JOB in the system which used the equipment of this operation gestalt, and other information flows. In addition, the thick arrow head in drawing expresses the flow of Print JOB, and the arrow head of a dotted line expresses other information flows.
[0179] However, the parameters referred to at the time of printing of the document used as the object for printing and printing number of sheets, printing quality, printing size, etc. are included in the print JOB stated with this operation gestalt. Moreover, there are the statuses, such as normal and those without a form, and a schedule of the print JOB which the print JOB scheduling section 520 has in the information on other during printing which each printer has.
[0180] In drawing 60 , with a client machine 510, once creating Print JOB in the print JOB creation section 512 and memorizing in the print JOB storage section 513, it is transmitted to the server machine 511 which manages a printer by the print JOB transmitting section 514 from the client machine 510 which created Print JOB.
[0181] In a server machine 511, the sent print JOB is passed to reception and the print JOB interpretation section 571 by the print JOB receive section 516. In the print JOB interpretation section 571, the directions from a user included in the received print JOB are interpreted, and it changes into information, such as a parameter which can process a system. When the parameters of Print JOB have not been set up, the print JOB automatic setting section 517 is passed, and delivery and when already being set up, the print JOB automatic modification section 518 is passed. Moreover, in the print JOB simulation section 601, printing by setting out specified on Print JOB is simulated, and printing time amount and the amount of the toner used are calculated.
[0182] A non-set up printing parameter is set up in the print JOB automatic setting section 517, taking into consideration the urgency acquired from Print JOB, profitability, quality, etc. On the other hand, in the print JOB automatic modification section 518, changing the parameter already set up in the same processing is also realized. Thus, the print JOB set up or changed is registered into the schedule of the print JOB which the print JOB scheduling section 520 has, and reading appearance is carried out from there to the sequential print JOB transmitting section 519, or it is printed over the immediate printing JOB transmitting section 519.
[0183] Here, the status of usable printers, such as normal and those without a form, includes the print JOB automatic setting section 517 and the print JOB automatic modification section 518 during printing acquired through the printer situation-recognition section 515, and it is used for them in setting out or modification of Print JOB. Moreover, the printing schedule of the print JOB which the print JOB scheduling section 520 has similarly is also gone across and used.
[0184] Moreover, as expressed to drawing 60 , it is also assumed that Print JOB flows in a different path. For example, when the machine which has managed the printer is the same as the machine which created Print JOB, it may not pass along the print JOB transmitting section 514.
[0185] Drawing 61 is the flow chart of processing by the print JOB simulation section 601. In the print JOB simulation section 601, the factor which determines printing time amount and the amount of the toner used is first initialized as preparation of a simulation at step S611. At step S612, the printing time amount in setting out specified on Print JOB is simulated, the amount of the toner used in setting out specified on Print JOB by step S613 is simulated, and printing time amount and the amount of the toner used are calculated.
[0186] The concrete approach is the same as that of what was explained with the operation gestalten 17 and 18.
[0187] [Operation gestalt 22] With this operation gestalt, two or more output trays are prepared in a printer, and the tray outputted according to a user is chosen.
[0188] Drawing 62 is the flow chart of the procedure of the printer system of this operation gestalt. A printer system starts processing of drawing 62 , after processing the response at the time of receiving two or more prints JOB simultaneously etc., if Print JOB is received.
[0189] The external view of the printer of the printer system of this operation gestalt is shown in drawing 63 . As shown in this drawing, these printers 631 and 632 have two or more output trays, have the screen which indicates whose document the document on that tray is in each output

tray by the printer 631, and express whose document is shown in a common screen at which output tray as a printer 632. Moreover, if the user is beforehand set up for every output tray, it becomes an output tray only for users, and if it does not set up especially, the user of each output tray will change if needed.
[0190] Functions, such as telling the failure of a printed document which tells arrival of a document and which tells termination of printing taking by this system (the sensor sticking), are realized. The flow of the above processing is explained.
[0191] In drawing 62 , receiver's address information is acquired from the information included in Print JOB at step S621. Receiver's address information is acquired by interpreting the assignment filled in as the operation gestalt 29 explaining into the content of the print JOB, or is acquired from the information set up apart from the content of the print JOB from the beginning like E-mail. When using it, usually carrying out like [instead of FAX or E-mail] like [although the receiver's address is not specified] the system using this operation gestalt in using a printer as an output device of the usual personal computer like the example of an activity of the conventional technique at this time, usually the receiver's address is specified as reverse. At step S622, it is confirmed whether the receiver's address is specified. At step S623, the man of the receiver's address is notified of the document having arrived. At step S624, sending agency information is acquired from the information included in Print JOB. Sending agency information is acquired by interpreting the assignment filled in as the operation gestalt 29 explaining into the content of the print JOB, or is acquired from the information set up apart from the content of the print JOB from the beginning like E-mail. When using it, usually carrying out like [instead of FAX] like [although a sending agency is in the management range of this system] the system using this operation gestalt in using a printer as an output device of the usual personal computer like before at this time, as for sending-conversely origin, it is common that there is nothing in the management range. At step S625, it is confirmed whether a sending agency is in the management range. At step S626, when the receiver's address is specified, an output tray is chosen corresponding to the receiver's address. When the receiver's address is not specified but only the sending agency is specified, an output tray is chosen corresponding to a sending agency. As shown in (a) of drawing 63 R> 3, the information on receiver's address or sending origin is expressed on a corresponding output tray as step S627. Or as shown in (b) of drawing 63 , the information on receiver's address or sending origin and the location of an output tray are displayed on a common-display screen. If the user is beforehand set up for every output tray at this time, it becomes an output tray only for users, and if it does not set up especially, the user of each output tray will change if needed.
[0192] Printing is performed at step S628. It is confirmed whether, at step S629, a sending agency is in the management range by completing printing. At step S630, it notifies that printing was completed to a sending agency. It is confirmed whether at step S631, a fixed time amount document remains and a sending agency is in the management range. At step S632, it notifies that the printed document remains in the sending agency for a long time.
[0193] [Operation gestalt 23] The information about time amount is dealt with with this operation gestalt. Drawing 65 is drawing showing the functional configuration of the system of this operation gestalt. The processing section 650 was equipped with the understanding section 652, the planning section 653, the activation section 654, the response section 655, and the knowledge base 656, and has connected with a database 651.
[0194] Drawing 64 is the flow of overall processing of this operation gestalt, and flow-chart-izes procedure in the functional configuration of drawing 65 .
[0195] At step S640, it investigates whether there is any input from the outside, and if it is, he will analyze the text inputted by the understanding section 652 at step S641 with reference to the knowledge base 656 per a word or sentence, and will analyze and understand the object of the content of an input by step S643 further. If it judges whether information required for the target understanding is insufficient and there is lack at step S644, it will ask to a user at step S645, the reply from a user will be learned to the knowledge base 656, and it will return to step S643. If there is no lack, it will progress to step S646. Moreover, at step S640, if there is no input, the work which should be performed will be found out by step S642, and it progresses to

step S646.
[0196] At step S646, the planning section 653 performs the planning for attaining the object. At step S647, if it judges whether information required for a planning is insufficient and there is lack, it will ask to a user at step S648, the reply from a user will be learned to the knowledge base 656, and it will return to step S646. If there is no lack, a plan will be performed by the activation section 654 at step S649. At this time, if needed, a database 651 is accessed or the activation section 654 communicates with other applications. And the content is determined when judging whether a response should be performed at step S650 by the response section 655. Furthermore, at step S651, the response corresponding to the determined content is created and a user is answered.
[0197] if , when it have recognize to the information inputted from the outside , for example , a keyboard entry , voice input , E-mail and FAX , news information , etc. , the understanding section 652 analyze the content , analyze a time concept from the language in a text , and it understand the content of the text which have involvement in time amount .
[0198] Drawing 67 is drawing showing the example which extracts schedule information from an electronic mail. Above-mentioned processing analyzes the content of the document received by E-mail, as specifically shown in drawing 67 . The time concept of "February 22", "13:30", and "15:00" is found out and analyzed, and the patent system explanation meeting is planned in B conference room from [which has involvement in this concept / text "/ on February 22] 13:30 to 15:00. " — by understanding, it becomes possible to match the action relevant to time amount with a schedule.
[0199] Moreover, the time concept and current time which were analyzed are compared, if it is the time of day of the future, the action will be registered into a schedule, if it is description about the past time of day, without registering with a schedule, it will cancel or an individual database etc. will be registered as information on classes other than a schedule as record of the past occurrence.
[0200] Moreover, the information as which the understanding section 652 was inputted from the outside, for example, keyboard entry, The contents, such as voice input, E-mail and FAX, and news information, are analyzed. When a plan without the language (a word, concept, etc.) which a system does not know yet in the language in a text, or having performed etc. is discovered When there is no urgency in the language and plan, it learns by finding the information in connection with the language and plan one by one, and stores in the knowledge base 656 as information.
[0201] It is memorizing something that is called XYZ existing, when the language which is not known "XYZ" comes out, and then specifically analyzing the text XYZ's being "dramatically delicious", "XYZ's being hard", etc., and XYZ is hard and delicious food. It learns.
[0202] If a user understands it as the plan at the time of an absence from the situation at that time, for example when the first plan is directed also about a plan, it will learn as an example of how to stand the plan at the time of a user absence.
[0203] Furthermore, the system which is reporting the action and the plan which the system performed to the user each time when the information in connection with a user is acquired from news etc. is received. It is not necessary to carry out a report of this information from a degree. a user — a report — the carrier beam time — "— By taking out directions with the natural language " etc. to a system, a system can also be learned so that the information may not be reported.
[0204] As mentioned above, in this system, the content of the information inputted from the outside is analyzed in the understanding section 652, the object is analyzed, and in order to attain the object in the planning section 653, the plan of the action which a system must perform is stood. And processing is performed in the activation section 654. Moreover, the response section 655 informs a user of the performed processing.
[0205] For example, when it is understood in an individual database from the addresser's information at a carrier beam case that E-mail which is shown in drawing 67 is mail from a non-registered partner, the information about the man is extracted from e-mail, and it registers with the individual database of a database 651. Furthermore, also when the information about a non-registered person is in an individual database in addition to it, you may make it register with an

individual database.
[0206] Moreover, by understanding that e-mail is advice of an explanation meeting, it accesses at the schedule of the user of a database 651, and time amount with the existing schedule data is matched. When there were no problems, such as a collision with the existing schedule data, in new schedule data and a problem is discovered as drawing 69 R> 9 shows this data, although additional registration of the schedule is carried out, the report to the answer and user to a transmitting agency is created.
[0207] Thus, by understanding the content from the received information, this system makes the response which a system should perform according to a situation, and is performed.
[0208] In addition, although processing in which an answer was created and returned to the partner who has sent E-mail, without a system checking to a user was performed in the above-mentioned explanation, this is the action performed from the result of the text "connect the more inconvenient one urgently" being in a document, and having analyzed this since it judged that the urgency of a response was high. Here, when the holding schedule was quite previous time, or it is a meeting of arbitration participation etc. and it is judged that the urgency of a response is low, it opts for the action performed according to an urgency, such as checking to a user in advance of a response.
[0209] Moreover, it is possible like the directions from the user by natural language to access and answer a schedule, an individual database, etc. to the natural language input from a user.
[0210] for example, — "— whom — that the telephone number of that accesses an individual database by asking a question what No. ?" with natural language **** — "— the board on the 16th is where — it is possible by receiving a question with natural language as ?" to access a schedule and to reply to a user.
[0211] Drawing 66 is drawing showing the class [exterior / which perform overall processing of this operation gestalt / the system and the exterior] of I/O.
[0212] As an input, it can input from a keyboard or the voice inputted from the natural language information received as an electronic mail or the document inputted as an image from a scanner, an image, a microphone, etc., the image inputted from a camera can be treated. The input of natural language can be acquired by performing character recognition processing to the document read with the scanner, and performing speech recognition processing to voice.
[0213] In an input, those (Idle) without an input look for the work which the system itself should perform, when anything does not have an input from the outside, as step S642 of drawing 64 R> 4 showed, and they are taken as an input. For example, when it is an idle state without the given work, news are accessed, and it goes to take oneself the information which has involvement to a user, and considers as input.
[0214] Moreover, as an output, they are the registration to databases, such as a schedule, filing in a file storage unit, or deletion of data. Furthermore, there are advice to a user, answerback to a transmitting agency, etc. That an important thing can make judgment that it cannot process in the range of an understanding of a system, and carries out the response of the purport which is not made with an output etc. is the point which can perform other actions, when processing is impossible.
[0215] Moreover, as a partner of I/O, there are other processing sections or another applications inside the equipment of a user or the exterior or a system etc.
[0216] Moreover, while close analyzes the document to which it came, carries out data extraction of the information about people, and the information about time amount and stores them in a personal data base or schedule data, information required to guess action expected is also extracted and it is used by planning.
[0217] Close came by the example of drawing 67 . E-mail As description concerning people as a result of analyzing a document,

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To: toshima@abc.canon.co.jp,
robra@abc.canon.co.jp,
kazuyo@abc.canon.co.jp
From: ichiro@abc.canon.co.jp
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He is Suzuki of a system intellectual property propulsion division.
Suzuki (ichiro@abc.canon.co.jp) 044-549-6312 Canon (extension 620-5151) Co., Ltd. — The intellectual-property headquarters system intellectual property propulsion division exists, among these the person whose mail address is "kazuyo@abc.canon.co.jp" is registered in an individual database, supposing other persons have not registered, the information on PERSON 1, 2, and 3 will be extracted from there like drawing 67 , and they will be registered into a database 651.
[0218] On the other hand, as description of the information about time amount, since "the patent system explanation meeting is planned from [on February 22] 13:30 to 15:00 in B conference room" exists, the information on EVENT1 is extracted from there.
[0219] Furthermore, as description used for guessing action expected, since "connect the more inconvenient one urgently" exists, it is used by the processing explained henceforth [drawing 70].
[0220] Drawing 68 is the flow chart with which the part required for origin was extracted [the flow of the processing for performing processing of drawing 67 and drawing 69] for the flow chart of drawing 64 , and the executive operation step S649 was expressed more concretely.
[0221] According to drawing 67 and the flow of 69, it explains concretely below.
[0222] At step S680, if there is an input of E-mail, the inputted E-mail document will be analyzed for every word or sentence by step S681. At step S683, he understands "there is people's information" and there "there being an event called an explanation meeting" from a signature and a header. Furthermore, he understands "an answer is required at the time of inconvenience."
[0223] People's information is extracted and the plan registered into a database and the plan to register an explanation meeting event into a schedule are built at step S684. An activation plan exists at step S685. At step S686, since it is satisfactory, processing is passed to step S688. At step S688, people's information is extracted, and it registers with a database, and returns to step S685.
[0224] In the case of drawing 67 , the activation plan to register an explanation meeting event into a schedule exists at step S685. At step S686, since this event can be registered into a schedule without a problem, it passes processing to step S688. A schedule is registered at step S688. If it returns to step S685, since there is also no advice sentence at step S689 by there being no activation plan, processing will be ended.
[0225] In the case of drawing 69 , the activation plan to register an explanation meeting event into a schedule exists at step S685. The collision of a schedule is discovered at step S686. Since there is a problem in activation of a plan, since it is inconvenient, a plan is reorganized at step S687 so that an answer may be reported to delivery and a user. The plan to write an answer and to transmit at step S685 exists. At step S686, since it is satisfactory to activation of a plan, it is step S688, and convenience draws up the document of a bad purport and transmits a reply document to the partner of a transmitting agency. At step S685, the document preparation plan for advice of a user exists. At step S686, it is satisfactory to activation, and is step S688, and the document which notifies a user of having sent the answer which asks you for reconsideration by the content of the E-mail and schedule collision is drawn up. At step S685, there is nothing, an activation plan is step S689, since it has an advice sentence, a user is suitably notified of it, and it ends processing.
[0226] Schedule information by which data extraction was carried out in the example of drawing 69 EVENT1 Schedule planned from before As a result of comparing EVENT2, it turns out that the schedule has lapped. Furthermore, according to the information extracted in the example of drawing 69 , when inconvenient, it also turns out that it must connect. So, in the system using this operation gestalt, using the information of letter creation, since the schedule has lapped, the letter which tells the purport that a board cannot be attended is created and an answer is transmitted automatically.
[0227] Furthermore, the user of the system using this operation gestalt is notified of the system using this operation gestalt having sent the answer automatically.
[0228] [Operation gestalt 24] Drawing 70 is drawing showing an example when a user questions the system of this operation gestalt with voice.

[0229] If a user asks a question "********? which does tomorrow's board where" with voice, a system can answer the location of a board with reference to a user's schedule information. Furthermore, explanation is performed, creating an explanation story and mixing graphical image and voice, after planning whether it becomes intelligible, when the way to the location where a board is held for a user is not found, and a question was asked "Where [of bottom Maruko] it is", and explaining to the user how further with reference to the database to it.
[0230] Drawing 71 is the flow chart with which the flow of processing of drawing 70 was expressed based on the basic flow chart of drawing 64 . Here, the input from the outside serves as a question.
[0231] The processing to the 1st question is explained. At step S710, if voice input (********? which does tomorrow's board where) from the outside is performed, it will be step S711 and an input statement will be analyzed. At step S712, he is a question about tomorrow's board and understands that a user's object is getting to know the location. At step S713, in order to reply to a question, the following plannings are performed. ** Take out tomorrow's schedule. ** Acquire the location registered into the schedule. ** Perform document preparation for notifying the acquired location.
[0232] Although it is step S714, and processing is passed to step S716 since there is no lack of information in this case, since it does not know which board it is when two or more boards exist in a schedule, asking a user at step S715 and reorganizing a plan again will be performed. At step S716, the plan stood at step S713 is performed, and the document of an answer to a user is drawn up. It determines to reply, since the document of which a user should be notified exists at step S717. It is also simultaneously determined that he understands that the input was voice at this time, and an answer will also perform it with voice by it. At step S718, a user is notified of the document changed into voice data.
[0233] Here, although processing is once ended, the question from a user is inputted continuously. The processing to the 2nd question is explained.
[0234] If voice input (where [of bottom Maruko] is it ?) from the outside is performed at step S710, an input statement will be analyzed at step S711. He understands that it is the question which understands that it is the continuation question of the 1st question at step S712, and asks the concrete location of the answered name.
[0235] At step S713, in order to reply to a question, the following plannings are performed. ** The plan to acquire an image required from a plan, ** image database, and the database of a location for what it pours to a plan that explanation is difficult in written form, and ** image is poured in order, and is explained, the plan to draw up the document which doubled with ** image.

[0236] There is no lack of information at step S714. At step S716, sequential execution of the plan stood at step S713 is carried out, and the document of an answer to the user who doubled with the image is drawn up. Since the document of which a user should be notified exists at step S717, it determines to reply. It is also simultaneously determined to explain with voice by it, understanding that the input was voice at this time, and displaying an image on a monitor. A user is notified at step S718. The flow of the processing of a single string of drawing 70 by the above is ended.
[0237] [Operation gestalt 25] When a schedule laps, the example of drawing 72 proposes to a user, after planning how [of the priority of two schedules] should be evaluated and carried out.
[0238] That is, in the case of this example, when one schedule is more important than another side, it is proposed that the schedule of the direction which is not comparatively important is canceled.
[0239] When it has the information that a user can see off a deputy about the schedule which had cancellation proposed, to it, a system can perform further action united with it by replying to a system such. Moreover, it can also learn about the plan to see off a deputy, at this time.
[0240] Drawing 72 is step S686 explained with the flow chart of drawing 68 , and combines other examples of how to stand the plan in step S646 of drawing 64 at the time of discovering the collision of a schedule.
[0241] Although drawing 68 explained as processing which transmits the answer of

inconvenience to a partner unconditionally, here explains the processing using two or more reply NINGU as an art of RIPURANNINGU of step S646.
[0242] Drawing 73 is the flow chart of the processing for evaluating a priority from the content of the document and proposing to a user as reply NINGU at the time of a schedule collision. This processing is explained below.
[0243] The priority of the schedule described above is synthetically determined from the attendant to the information which the user set up beforehand for every schedule, and the event contained in a schedule, the object of a schedule, the result analyzed from the received content of a document. Here, the priority determined from an attendant may be set up to a person from whom a user becomes an attendant beforehand.
[0244] Moreover, a user may set up beforehand the priority determined from the object of a schedule, and it may be made to be determined by taking into consideration similarity with the object and field in which the user who learned from the past actuation is interested. That is, priority is given to the direction of the schedule of a computer-related event over an estate-related event when the user is engaged in computer-related work. Of course, priority may be given to the direction of the schedule of an estate-related event, if the user is considering the purchase of a house and that is memorized as information about a user.
[0245] On the other hand, as a priority determined from the analysis result of the content of a document, when the schedule of the document of the description "be sure to be present", and the document of the description "be present if it can do" collides, suppose that former one is judged that a priority is high etc., for example.
[0246] In drawing 73 , the existing schedule information is acquired at step S730. Step S731 estimates the priority of new schedule information. The priority of both information is measured at step S732. The plan to draw up the advice document (for example, for two schedules which collide to be shown and for it to be asked whether I may cancel about the one where a priority is lower) for asking a user from a comparison result at step S733 is stood. The created advice sentence is told to a user at step S734. At step S735, the answer from the user to an inquiry of a plan is obtained. Here, in order to perform a user's answer and to plan a user's answer again as an input, the same processing as answer RIPURANNINGU of drawing 68 is performed (drawing 74).
[0247] Drawing 74 is the flow chart of processing of above-mentioned RIPURANNINGU.
[0248] The answer eventually obtained by drawing 73 at step S740 is given to an input. An input-statement document is analyzed at step S741. At step S742, he understands that they are modification of a schedule, and the first directions plan.
[0249] The following plans are stood at step S743. (a) Change a schedule. (b) Draw up the document for notifying an acting man. (c) Learn a new plan. (d) Draw up the document of which a user is notified. (e) Notify that it remembers and there is a schedule.
[0250] At step S744, the plan stood at step S743 is performed. (a) Change a schedule. (b) Draw up and notify the document for notifying an acting man. (c) Learn the plan to order an agent. (d) Add to a creation document that draw up the document for notifying a user, it (e) Remembers, and there is a schedule.
[0251] At step S745, the advice sentence to a user is told to a user. Above, explanation of the processing for performing processing of drawing 72 is ended.
[0252] [Operation gestalt 26] Drawing 75 is drawing showing a whole image also including I/O of the system of this operation gestalt. Drawing 76 is a flow chart showing the flow of processing of the whole system of drawing 75 .
[0253] The information inputted from various input devices, such as E-mail, voice, keyboard entry, WWW, a telephone, FAX, a scanner, and a camera All are analyzed in the input Management section 751 (step S760). In the Core section 752 After understanding the content and planning suitable processing (step S761), by the output Management section 753 After determining output media and making preparations of the content of an output, or an output path (step S762), it is outputted from various output equipment, such as E-mail, voice, WWW, a telephone, FAX, a printer, and a copy machine.
[0254] Drawing 77 -79 are the flow chart with which step S760 (processing of the input

Management section 751) which is each step of the whole drawing 76 flow chart, step S761 (processing of the Core section 752), and step S762 (processing of the output Management section 753) were expressed concretely.
[0255] In drawing 77 , the input Management section 751 is step S770, and waits for a new input. The information inputted at step S771 is acquired. At step S772, analysis processing of the acquired input is performed, when it has recognized, if . At this time, the input Management section 751 can receive information from various media, is an approach according to each media, and performs recognition and analysis.
[0256] In drawing 78 , the Core section 752 performs receipt processing for the input analyzed by drawing 77 .
[0257] At step S780, he analyzes and understands the object of input from an analysis result. At step S781, it investigates how the object of input is related to itselves (a system, user). That planning which should perform what from its relation at step S782 according to the object is performed. At step S783, the plan made from step S782 is performed.
[0258] In drawing 79 , if the output Management section 753 determines whether it is necessary to carry out a response from the result performed by drawing 78 and has the need, it will create and output a response.
[0259] At step S790, analysis of the result performed by drawing 78 is performed. At step S791, it judges whether the response to the performed result occurs. If there is nothing, processing will be ended as it is. When a response occurs, it is determined whether what we do with the response to the response from the outside at step S792. The media which perform a response are determined at step S793. The response doubled with the determined media is created at step S794. The response created at step S795 is published according to media. At step S796, a response is outputted physically actually. The above is processing showing the whole drawing 75 image.
[0260] For example, when E-mail which tells a user about holding of a board arrives, input is first analyzed in the procedure of drawing 77 by the input Management section 751. From this result, in the procedure of drawing 78 , it is planned how a user and a system should correspond and the Core section 752 processes it. the result is passed to the output Management section 753, processing is performed by the procedure of drawing 79 , and a response should be carried out -- ** — when planned, a response is performed actually.
[0261] Here, it is step s782, and since it will be planned if it is required to notify a user positively depending on the content of the board and the situation of the schedule of the user before it which were told by E-mail, a response is needed. Therefore, it is judged as those with a response at step s791. The content which carries out a response is determined at step s792. For example, when the schedule has collided, selection of one of schedules is urged or, in the board which is not understood whether it should participate or not, the content itself which carries out a response, such as asking the decision, is determined here. Then, in step s793, the media which can tell most effectively the content of the response for which it opted above are determined. For example, if a user is in a going-out place, the media of which the user of going-out places, such as a telephone and FAX, can also be notified are chosen, and if it is the midst which is using the personal computer etc. for reverse, media, such as a personal computer which can display various data effectively, will be chosen. Then, in steps s794 and s795, according to the content and media which were determined above, a document and an image are created, and a response is created and published by the approach of being further changed into natural language voice depending on media.
[0262] Drawing 80 is a flow chart for explaining how data are extracted from the information still more detailed and inputted [the overall flow of drawing 75].
[0263] By the system using this operation gestalt, when a document is inputted, with reference to notations for classification distinction, such as a layout of a document, and a bar code, the type of a document is first guessed at step S801. Consequently, if a document can guess a letter, a report, a patent official report, etc. and it cannot progress and guess to step S803, it progresses to step S810, perfect OCR is performed, and a document type is decided.
[0264] At step S803, by OCR, in order that the guessed document type may check whether it is

the right, OCR of the block characteristic of checking a document type is carried out, and it is interpreted (refer to drawing 82). Consequently, at step S804, the destination of a letter, the patent number of a patent official report, etc. are known, and a document type is checked. If in agreement [with the document type which this checked document type guessed] and it is not [it progresses to step S806 and] in agreement with it, it progresses to step S810. For example, if it is the electronic forms with which the character string which expresses the class of document to a part for the upper part of a form is printed, document type decision is easy by carrying out OCR of the upper part of the form.

[0265] At step S806, a specific block is read by OCR using the knowledge base of the document type by which the check was carried out [above-mentioned], and it interprets, and checks [whether the information related to the information acquired as a result at step S807 existed in the past, and], when it exists, it progresses to step S808, and when it does not exist, it progresses to step S810. Consequently, the destination, a patent number, etc. are known and it is understood whether it is the answer of the letter sent in the past.

[0266] At step S808, the object is judged from the content of the text which becomes important for origin about the situation by which an understanding was carried out [above-mentioned] etc., and it opts for the processing performed at step S809.

[0267] At step S811, an analytical range is extended and analyzed from the object understood above in the range in which OCR of others is not carried out, and processing is performed actually henceforth [step S812]. Consequently, processing of filing etc. will be performed if required.

[0268] Since OCR can be performed by the above-mentioned processing, guessing the content, it becomes possible obtaining an efficient exact OCR result rather than performing perfect OCR suddenly like before, and processing to which it is carried out based on an OCR result can also be performed correctly.

[0269] Drawing 81 is drawing showing the letter set as the object of data extraction processing / example of fax.

[0270] In this example, the type of a document is guessed from the layout of a document at step S801. Consequently, it becomes a DocType1 = letter / fax.

[0271] On the other hand, a specific block is read and interpreted by OCR at step S803. (Refer to drawing 82) Consequently, From, To, Dear Sir, etc. are obtained and it is checked with a DocType2= letter / fax at step S804.

[0272] Specific block reading by OCR explained at step S803 of drawing 80 is explained concretely. Drawing 82 R> 2 is drawing explaining this processing.

[0273] In the system using this operation gestalt, scanning is performed as follows.

** Read into a high speed by the PURISU can with low resolution.

** Compare the read informational form with the form information currently stored in DB823, and when in agreement, read only the information inputted in addition to form, or the information on the field (for example, part within the limit on the card of drawing 82) specified for every form with high resolution.

** Analyze only the field read above as an object of OCR, and continue processing.

[0274] Furthermore, since the possibility of the form with the same document which it is going to read with the fixed time interval since it assumes that two or more cards of the same form exist in this example is high, it processes as a thing of the same form first, and re-analysis is performed as that from which form differs only after conflict occurs.

[0275] By this, an analytical range is limited, an analysis domain is pinpointed by moreover specifying form with the large improvement in processing speed, and the large improvement in analysis precision is attained.

[0276] Decision of the object from a content etc. explained at step S808 of drawing 80 is explained concretely.

[0277] In the system using this operation gestalt, decision of processing is performed by the procedure of drawing 83 with reference to the data of the date. The following processing is performed when an informer is a user.

** When the date is today, judge that it transmits by FAX.

** When the date is before yesterday, ask a user whether the before same document was sent and whether the same content has been seen, and judge whether it is the mistake of filing, retransmission of message, and a user.
** When the date is after tomorrow, hold till the day specified as the date, or ask whether to be a user's mistake.
[0278] When the document of drawing 81 was made into the example, Date1 is made into the date of a document and Date2 is specifically made into today's date, ** Date1 = November 25, 1996 & Date2 = November 25, 1996 - Document **** ** Date1 = November 25, 1996 & Date2 = July 2, 1997 - File ** Date1 = November 25, 1995 & Date2 = November 26, 1996 Contents date = December 18, 1996, 22 days - Mistake [0279] Drawing 83 is an example of the flow chart of processing which analyzes the object from the inputted document. If a document is inputted, it is judged that it is the document which the document which the transmitting person had it judged at step s830 whether you were a user, and was inputted in other than a user received, it will be step s831, the objects, such as filing and data extraction, will be probed corresponding to it, and it will end.
[0280] On the other hand, when a transmitting person is a user, in order to analyze further what kind of document the inputted document is, it progresses after step s832. The date of a document and today's date are compared by step s833, and when it is confirmed whether the document was before transmitted at step s835 when the date was near and it has not transmitted, it is determined that the object is "transmission of a document." Moreover, in the case of the document transmitted before, it is step s843 and the objects, such as filing and retransmission of message, are probed corresponding to it.
[0281] It is confirmed whether on the other hand, when the date of a document was quite a former thing, it progressed and transmitted to step s836, and when it is the transmitted document, similarly it progresses to step s843. When having not transmitted, it progresses to step s837 and it is confirmed whether the other date is indicated from the information in a document. When the date is found, similarly it progresses to step s843. It is judged that the date may have mistaken, although transmission of a document can be considered as an object when there is no date.
[0282] Moreover, when it is confirmed whether there is any other publication of the date from the information in a document at step s840 when the date of a document is quite [date / current] a previous thing and the date is found at step s841, it is determined that the object is "transmission of a document." When there is no date, it progresses to step s839.
[0283] [Operation gestalt 27] Drawing 84 is drawing showing one of the examples of the structure of a system which used this operation gestalt. In this example, a system operates like the present FAX.
[0284] However, according to the system of this operation gestalt, without a user specifying a transmission place, from the information on the bar code given to the read document, or a cover sheet, the transmission place of a document is judged and it can transmit to a suitable transmission place.
[0285] By this, information will be sent suitable for a printer, and FAX, E-mail and WWW.
[0286] [Operation gestalt 28] Drawing 85 is drawing showing one of the examples of the structure of a system which used this operation gestalt. In this example, a system realizes the function of a desk sorter to process all the documents on a desk.
[0287] That is, according to the content of the read document, a classification, filing, scheduling, other data extraction, and automatic activation of processing are performed.
[0288] [Operation gestalt 29] Drawing 86 explains to a detail further the system explained by drawing 85 . Based on drawing 86 R> 6, procedure is concretely explained according to the flow chart of drawing 87 .
[0289] Drawing 87 is a flow chart showing the procedure of this operation gestalt. Drawing 88 and drawing 89 express the information used during this processing, and drawing 88 expresses the information of the common knowledge base. Drawing 89 expresses the information of the knowledge base of the field specified as the cover page. The character string contained in the document inputted with reference to the information defined by drawing 88 and drawing 89 with

this operation gestalt is compared with the character string defined by the column of the character string in drawing, and it analyzes by acquiring the concept of the congruous items, Role which specifies the semantics further, Condition which specifies the information which follows, or the directed processing Action.

[0290] In drawing 87 , at step S870, a cover page is scanned and OCR processing is performed. At step S871, information, such as a name of a transmitting person and an addressee, the telephone number, and a FAX number, is extracted with reference to the knowledge base of drawing 88 . The extracted information is registered into a database at step S872. For example, the cover page of a document which received in the example of drawing 86 "To : The character string Macrohard Corp." is contained. Then, the item "To" which is in agreement as compared with the item defined as the column of the character string of drawing 88 is discovered, and since the Role is a receiving firm name or a name, "Macrohard Corp." is extracted as an addressee's information.

[0291] At step S873, actions and JOB(s), such as the advice approach, a means and a filing activity, and a location, are taken out from the knowledge base of the field specified as the cover page of drawing 89 . For example, the cover page of a document which received in the example of drawing 86 "File : A character string called MH/Contract" is contained. Then, the item "File" which is in agreement as compared with the item defined as the column of the character string of drawing 89 is discovered, as directed action, filing is taken out and "MH/Contract" is extracted out of a document as information on a filing location.

[0292] Here, it is on Date1 = November 25, 1996. Supposing it is on & Date2 = November 25, 1996, as explained per drawing 83 , it will be judged as object-document ****.

[0293] At step S874, it checks whether action for the object of this processing exists. At step S875, action transmitted since it is the object to transmit a document to a partner is performed. It judges whether at step S876, there is any need for filing from the information on a cover page. At step S877, since there is need in the example of drawing 86 , it files in "MH/Contract" which is the directed location.

[0294] At step S878, it judges whether it is necessary to notify a transmitting person from the information on a cover page like step S876. Since notifying a transmitting person with voice is directed, a transmitting person is notified of having transmitted the document to the partner at step S879 with voice. At step S880, it judges whether other actions occur. In step S881, since there is keyword assignment, an index is created by keyword called ABC.

[0295] [Operation gestalt 30] Drawing 90 is drawing showing the example which refers to the hysteresis performed in the past based on directions by the natural language by which voice input was carried out, and performs processing. Based on drawing 90 , processing is explained according to the flow chart of drawing 91 .

[0296] Drawing 91 is a flow chart which shows the flow of processing of this operation gestalt. From a user, with voice, if the directions "Fax Contract again to John.Notify him by Phone." are received, this system will analyze the object of directions by the received natural language, and he will understand "broadcasting a document called Contract again to John by FAX, and telling arrival by telephone." Then, in order to specify Document Contract and the transmission place John concretely and to perform processing, the flow of drawing 91 is performed.

[0297] At step s910, since transmission is performed before, retransmission of message acquires hysteresis information from a database. Consequently, Documents Contract and John are specified from hysteresis information. At step S911, it is from a personal data base. John The destination is acquired. Although a transmission place cannot be specified in the database if it is original since two persons' John called John Smith and John Bush exists, it is having referred to hysteresis information at step s910, and before, it becomes clear that John which sent Document Contract is John Smith, and a transmission place is specified. At step S912, the "Contract" document is acquired from a filing database. At step S913, it is a transmission place. John A document is transmitted. At step S914, since there are advice directions "Notify him by Phone", it is judged that there is the need for advice. At step S915, like drawing 89 , it directs to FAX901 of a transmission place from the rule of the knowledge base so that advice may be given to an addressee by telephone. At step S916, since action the outside of it is not directed, it ends

processing.
[0298] Furthermore, FAX901 which received the document notifies having received the document from Mr.Doors to John by telephone according to the above-mentioned advice directions. In addition, when FAX901 cannot notify by telephone, it may be made to carry out by being a transmitting agency.
[0299] [the operation gestalt 31] — the content of the input-statement document to the user by whom drawing 95 was analyzed should perform something — ** — after judging and asking a user actually, it is the flow chart of the example which carried out automatic activation of the required processing. Drawing 92 is drawing showing the example of an input-statement document. Drawing 93 is drawing showing the content of the conversation of a system and a user. Drawing 94 is the output-statement document which the system drew up, judging from the conversation of drawing 93 .
[0300] Based on the flow chart of drawing 95 , processing until it draws up the output-statement document of drawing 94 from the input-statement document of drawing 92 R> 2 is explained.
[0301] At step S950, he analyzes the input-statement document of drawing 92 , and understands the following objects. (a) John Smith him — arrive in Yokohama at 3:00 on November 28. (b) John Smith him — poor at Japanese. (c) I want you to pick up at a station.
[0302] At step S951, it judges whether a user should perform something from the understood content. Here, since it judges that it must go to invite to a station, it moves to step S952. At step S952, it judges whether a it (system) can perform in a deputy. Here, since a system cannot go to greet by oneself, it moves to step S953. At step S953, it judges whether it is necessary to ask a user or not, and progresses to step S954. From the destination of the document inputted in this example Aruna Rohra Since it is judged that it is a request of addressing to him, it moves to step S954.
[0303] At step S954, it asks by doing the activity for asking a user (Mr. Aruna Rohra). Although it must go by this example to make Mr. John a user from the result understood at step s951, it is asked to the user how it should be coped with. It judges what is performed next from the asked result at step S955, and judges whether it is necessary to take action or not. In this example, since the user is directing so that it may order going to invite to Mr. Tanaka, he takes action according to those directions. Therefore, since the need of ordering whether I being able to ask of Mr. Tanaka instead here came out, it is judged that it is necessary to take action. At step S956, document preparation for asking a deputy of Mr. Tanaka and communication are performed. Here, the document for electronic mails is drawn up and it transmits. In this example, since it says that the information that Mr. John will arrive on the 28th, directions of wanting you to pick up instead of a user, and the document of an original copy that became the origin of this request are attached, automatic creation of the document is carried out.
[0304] The flow of the processing for above carrying out the matter (here, that is it going for welcoming to a station) from which a user has to take action actually from an input-statement document was explained.
[0305] [Operation gestalt 32] Drawing 96 is drawing showing the operation gestalt which operates a system with remote control.
[0306] According to the system of this operation gestalt, each other can be specified as each other by communicating directly [a device and remote control] or indirectly. Thereby, a function called high UI of a degree of freedom corresponding [actuation according the capacity of ** automatic device specification and ** device to UI (user interface) of the acquisition from a device and ** device proper and ** voice and ** basic operation] to UI of community and ** user proper and ** situation to all devices is realized.
[0307] That is, the device for actuation is automatically recognized only by turning ** remote control to the device for actuation. ** Acquire the information for every device from the device itself through IrDA or wireless LAN. ** While realizing UI of a device proper from the information for every acquired device and enabling actuation with ** voice ** It is realizing common basic operation by making fundamental actuation operational with the same remote control, and referring to ** user's identification information. It acquires required information from a database or an address book for every user, and it not only realizes UI of a user proper, but realizes

optimal UI according to ** situation.
[0308] At drawing 96 , by turning remote control 960 to FAX963, model identification information is obtained from FAX963, and UI corresponding to this model is activated and is continued to displayed "Fax to". With a touch pen By inputting the character string "Fax to John" and directing to FAX963 The FAX number of John is read from the address book 965 in a personal computer 964, and the document with which it was specified on the file in the document set to FAX963 or a personal computer 964 is transmitted to the number. About this detail, it mentions later.
[0309] [Operation gestalt 33] Drawing 97 is drawing showing the example of a status monitor.
[0310] According to the system of this operation gestalt, information other than the machine with which the user is performing the direct control can be referred to.
[0311] Thereby, it is ** remote. & The function in which it can respond to all the devices in which ** voice actuation with the function of the common I/O for seeing handicap management, ** automatic device specification, and ** status and ** cellular phone and ** infrared I/O are possible is realized. That is, even if it is the location distant from the device for **, it becomes acquirable [required information]. ** Recognize the device for actuation automatically only by turning remote control to the device for actuation. ** realizing common basic operation by making fundamental actuation operational with the same remote control, and giving the function of a cellular phone to ** remote control — operability — improving — ** voice actuation — possible — carrying out — ** — a response in all the devices in which infrared I/O is possible is attained by using a general protocol.
[0312] In drawing 97 , the status monitor 970 is turned to a printer 961, a copy machine 962, or FAX963, by inputting and directing the character string "Status" with a touch pen, status information can be read from the device to which the status monitor 970 was turned to the status monitor 970, and the user of the status monitor 970 can check the status of each device. Moreover, even when a personal computer 964 is in the location which cannot receive the instruction from the status monitor 970 for example, status information can also be read from a personal computer 964 to the status monitor 970 through a network and a printer 961 by specifying a personal computer 964 to the printer 961 grade which can communicate through this personal computer 964 and network, and requiring the status.
[0313] [Operation gestalt 34] Drawing 98 is drawing in which remote control 960 recognizing an object model and showing the example which reads corresponding UI from the interior of remote control 960, and displays it. It is the screen of a default where the message "turn to a machine to operate" was displayed on remote control in the condition of having not turned to the object model, like the center of drawing.
[0314] Here, the flow of communication between remote control and an object model is explained. In addition, ** and ** are not indispensable at the following explanation. For example, the same effectiveness is realizable if the object model has always emitted the signal towards remote control at fixed spacing by **. Or you may make it an object model or other equipments detect that remote control 960 is turned to an object model from the physical relationship of remote control 960 and an object model. Moreover, the equipment configuration of an object model is seen, and remote control 960 reads the bar code given to the object model, and you may make it identify an object model or identify an object model by **. That is, only the indispensable part is illustrated in drawing 98 .
[0315] ** A user turns remote control 960 to an object model.
** In order to determine the timing which sends an object model recognition signal demand signal to an object model from remote control 960, a user touches the touch panel of remote control 960 etc. Or it is set up so that an object model recognition signal demand signal may always be beforehand sent at fixed spacing.
** Send an object model recognition signal demand signal to an object model from remote control 960.
** If it is set up according to the demand of the object model recognition signal demand signal from remote control 960 so that an object model recognition signal may always be beforehand sent at fixed spacing, an object model recognition signal will be sent according to the setting out.

** The remote control 960 which received the object model recognition signal determines UI in accordance with the object model which a signal shows, and displays corresponding UI currently stored in the remote control 960 interior. Here, although the recognition signal was made into every model, it is carrying out to every device, and UI from which this model also differs for every device can also be used.
[0316] Remote control recognizes an object model and drawing 99 is a flow chart in the example which reads corresponding UI from the interior of remote control 960, and displays it which shows the example of processing by the side of remote control. The flow of processing by the side of remote control is explained.
[0317] At step S991, it stands by until there is directions actuation of a user. The object model recognition signal demand signal for having an object model recognition signal sent from an object model at step S992 is sent by the infrared approach. At step S993, it stands by until an object model recognition signal is sent from an object model. UI corresponding to the received object model recognition signal is acquired from the memory of the interior which can refer to remote control 960 etc., and is expressed as step S994.
[0318] Remote control 960 recognizes an object model and drawing 100 is a flow chart in the example which reads corresponding UI from the interior of remote control 960, and displays it which shows the example of processing by the side of an object model. The flow of processing by the side of an object model is explained.
[0319] At step S1001, it stands by until there is a demand signal from remote control 960. At step S1002, an object model recognition signal is sent by approaches, such as infrared ray communication.
[0320] [Operation gestalt 35] Drawing 101 is drawing in which remote control shows reception and the example to display for UI from an object model. The screen of a default is displayed on the remote control 960 in the condition of having not turned to the object model, like the center of drawing 101 .
[0321] Here, the flow of communication between remote control and an object model is explained.
[0322] In addition, ** to ** is not indispensable at the following explanation. For example, the same effectiveness is realizable if the object model has always emitted the signal towards remote control at fixed spacing by **. Or you may make it an object model or other equipments detect that remote control 960 is turned to an object model from the physical relationship of remote control 960 and an object model. Moreover, the equipment configuration of an object model is seen, and remote control 960 reads the bar code given to the object model, and you may make it identify an object model or identify an object model by **. That is, drawing 101 is explaining only the indispensable part.
[0323] ** A user turns remote control 960 to an object model.
** In order to determine the timing which sends UI demand signal to an object model from remote control 960, a user touches the touch panel of remote control 960 etc. Or it is set up so that UI demand signal may always be beforehand sent at fixed spacing.
** Send UI demand signal to an object model from remote control 960.
** Send UI according to a demand of UI demand signal from remote control 960. Or if it is set up so that UI may always be beforehand sent at fixed spacing, UI will be sent according to the setting out.
** The remote control 960 which received UI displays UI.
[0324] Drawing 102 is a flow chart with which remote control 960 shows the example of the processing [in / for UI / reception and the example to display] by the side of remote control from an object model. The flow of processing by the side of remote control is explained.
[0325] At step S1021, it stands by until there is directions actuation of a user. UI demand signal for having UI sent from an object model at step S1022 is sent by approaches, such as infrared ray communication. At step S1023, it stands by until UI is sent from an object model. Received UI is expressed as step S1024.
[0326] Drawing 103 is a flow chart with which remote control shows the example of the

processing [in / for UI / reception and the example to display] by the side of an object model from an object model. The flow of processing by the side of an object model is explained.
[0327] At step S1031, it stands by until there is a demand signal from remote control 960. At step S1032, UI is sent by approaches, such as infrared ray communication.
[0328] [Operation gestalt 36] When UI of each device has drawing 104 in the wireless LAN server 1041 and UI is required towards the copy machine 962 which is an object model about remote control 960, it is the request from a copy machine 962 and is drawing showing the example as which UI is transmitted and displayed from the wireless LAN server 1041 to remote control 960.
[0329] The screen of a default is displayed on the remote control 960 in the condition of having not turned to the object model, like the center of drawing 104 .
[0330] Here, the flow of communication between remote control and an object model is explained.
** A user turns remote control 960 to an object model (here, it considers as a copy machine 962).
** In order to determine the timing which sends UI demand signal to an object model from remote control 960, a user touches the touch panel of remote control 960 etc. Or it is set up so that UI demand signal may always be beforehand sent at fixed spacing.
** Send UI demand signal to an object model with the remote control identification information (it considers as remote control A) for identifying remote control 960 self.
** The object model which received remote control identification information and UI demand signal from remote control requests transmission of delivery and UI from the server 1041 which has managed the object model for the object model identification information (copy machine) which discriminates the object model itself from remote control identification information (remote control A).
** A server 1041 sends UI of the model shown by object model identification information through wireless LAN etc. to the remote control 960 shown by remote control identification information.
** The remote control 960 which received UI of sent addressing to itself displays UI.
[0331] Remote control does not receive UI from an object model directly, but drawing 105 is the flow chart of processing by the side of remote control [in / through wireless LAN etc. / for UI / reception and the example to display].
[0332] The flow of processing by the side of remote control is explained. At step S1051, it stands by until there is directions actuation of a user. The remote control identification information for discriminating the remote control itself from UI demand signal for having UI sent to an object model at step S1052 is sent by approaches, such as infrared ray communication. At step S1053, it stands by until UI from where is sent. Received UI is expressed as step S1054.
[0333] Drawing 106 is a flow chart with which remote control does not receive UI from an object model directly, but shows the example of the processing [in / for UI / reception and the example to display] by the side of an object model through wireless LAN etc. The flow of processing by the side of an object model is explained.
[0334] At step S1061, it stands by until there is a demand signal from remote control 960. At step S1062, the remote control identification information received from remote control and their own object model identification information are transmitted to a server 1041, and transmission of UI is requested.
[0335] Drawing 107 is a flow chart with which remote control does not receive UI from an object model directly, but shows the example of the processing [in / for UI / reception and the example to display] by the side of a server through wireless LAN etc. The flow of processing by the side of a server is explained.
[0336] At step S1071, it stands by until there is a UI Request-to-Send signal from an object model. UI of the model which object model identification information shows to the remote control 960 which the remote control identification information received from the object model shows at step S1072 is sent.
[0337] [Operation gestalt 37] When drawing 108 has UI of each device in the wireless LAN server 1041 and UI is required towards FAX963 which is an object model about remote control

960a or 960b, UI which is the request from FAX963 and is different from the wireless LAN server 1041 for every user to remote control 960a or 960b is drawing in which being transmitted and showing the example displayed.
[0338] The screen of a default is displayed on remote control 960a or 960b in the condition of having not turned to the object model, like the center of drawing 108 . This screen is common to remote control 960a and 960b.
[0339] Here, the flow of communication between object models is explained to be a user, and remote control 960a or 960b.
** A user turns remote control 960a or 960b to an object model.
** In order to determine the timing which sends UI demand signal to an object model from remote control 960a or 960b, a user touches the touch panel of remote control 960a or 960b etc. Or it is set up so that UI demand signal may always be beforehand sent at fixed spacing.
** Send both UI demand signals for the remote control identification information (remote control A, remote control B) for identifying remote control 960a or the 960b itself, and the user identification information (an upper person, beginner) for identifying the user itself to an object model.
** From remote control 960a or 960b, the object model which received remote control identification information, user identification information, and UI demand signal sends the object model identification information which identifies the object model itself with the received remote control identification information and user identification information to the server 1041 which has managed the object model.
** A server 1041 sends UI shown by user identification information and object model identification information through wireless LAN etc. to remote control 960a or 960b shown by remote control identification information. In the example of drawing 10808 , for the beginner, UI for a broadcast function with it difficult [to use] is not sent to a beginner, but it has sent only to the upper person.
** Remote control 960a or 960b which received UI of sent addressing to itself displays UI.
[0340] Although he was trying to transmit a user's level information from remote control, you may make it distinguish a user's level from remote control in an object device or a server as user identification information, in the above-mentioned example, from the identification information which received, as the information which identifies users, such as a user name, according to an individual is transmitted.
[0341] Although the above-mentioned example explained only within UI, if different user identification information for every user is referred to, the content of the urgent mail which reached the user, a schedule to tell immediately, etc. can be included in UI, and it can transmit to remote control.
[0342] Drawing 109 is a flow chart which shows the example of processing by the side of remote control [in / for UI from which remote control does not receive UI from an object model directly, but differs for every user through wireless LAN etc. / reception and the example to display]. The flow of processing by the side of remote control is explained.
[0343] At step S1091, it stands by until there is directions actuation of a user. The remote control identification information for discriminating the remote control itself from UI demand signal for having UI sent from an object model at step S1092 and the user identification information for identifying the user itself are sent by approaches, such as infrared ray communication. At step S1093, it stands by until UI from where is sent. Received UI is expressed as step S1094.
[0344] Drawing 110 is a flow chart [in / for UI from which remote control does not receive UI from an object model directly, but differs for every user through wireless LAN etc. / reception and the example to display] which shows the example of processing by the side of an object model. The flow of processing by the side of an object model is explained.
[0345] At step S1101, it stands by until there is a demand signal from remote control. At step S1102, with the remote control identification information received from remote control, and user identification information, its own object model identification information is transmitted to a server 1041, and transmission of UI is requested.

[0346] Drawing 111 is a flow chart [in / for UI from which remote control does not receive UI from an object model directly, but differs for every user through wireless LAN etc. / reception and the example to display] which shows the example of processing by the side of a server. Moreover, drawing 112 is an example of the table having shown UI determined from an object model and user identification information. The flow of processing by the side of a server is explained.
[0347] At step S1111, it stands by until there is a UI Request-to-Send signal from an object model. With reference to a definition as shown in drawing 112 , UI corresponding to object model identification information and user identification information is sent to the remote control which the remote control identification information received from the object model shows at step S1112.
[0348] [Operation gestalt 38] Drawings 113 and 114 are drawings showing the example which realizes the function which the model for actuation before an eye does not have. The flow of communication between the user of this example, remote control, and an object model is explained.
** A user turns remote control 960 to an object model, and specifies the function to want to carry out.
** The model for actuation which received the demand from remote control 960 tells the demand to a server 1041.
** A server 1041 sends UI of the model corresponding to the demanded function.
** Remote control 960 displays UI which received.
** A user operates it according to directions of UI. In the case of this example, a user sets a document to send to the copy machine 962 before an eye, and directs and performs the destination with remote control 960.
** Ask other devices to be for that he can do it to perform the device for actuation by itself, and impossible [the thing of it] by yourself. In the case of this example, a copy machine 962 performs reading of a document, but since FAX transmission cannot be carried out, the content of operator guidance, such as a transmission place, is sent to FAX963 with document data.
** FAX963 carries out FAX transmission at the transmission place which had sent document data specified according to directions.
[0349] In order to determine the device which requests the function which cannot do a copy machine 962 by itself in the above-mentioned example, it may be made for each device to have the information about the function of other devices, and you may make it determine, as a result of asking whether the function can be performed to each device on a network. Or you may make it ask the server 1041 with the information of a function and a corresponding model.
[0350] [Operation gestalt 39] In the reasons of there being an obstruction in the middle of the model for actuation, and remote control before an eye, drawing 115 is drawing showing the example which tries indirect communication in other paths, when remote control does not have a model for actuation, and direct communication ****.
[0351] Here, the flow of communication between a user, remote control, and an object model is explained. In addition, ** to ** is not indispensable at the following explanation. For example, the same effectiveness is realizable if the object model has always emitted the signal towards remote control at fixed spacing by **. That is, only the indispensable part is illustrated in drawing 115 .
[0352] ** A user turns remote control 960 to an object model.
** In order to determine the timing which sends UI demand signal to an object model from remote control 960, a user touches the touch panel of remote control 960 etc. Or it is set up so that UI demand signal may always be beforehand sent at fixed spacing.
** Send UI demand signal to an object model from remote control 960.
** If the object device is set up according to the demand of UI demand signal from remote control 960 so that UI may always be beforehand sent at fixed spacing, it will send UI according to the setting out.
** The remote control 960 which received UI displays UI.
** Here, with remote control 960, when being set up so that the fixed time amount progress

back may be spent from UI demand signal transmission and UI may be spent at fixed spacing and UI is not sent during more than the spacing, send UI demand signal by alternative pathway. In this example, when communication by the infrared signal cannot be realized, communication using wireless LAN is tried.
** Display acquired UI through wireless LAN.
[0353] In the reasons of there being an obstruction in the middle of the model for actuation, and remote control before an eye, drawing 116 is a flow chart which shows the example of the processing by the side of remote control in the example which tries indirect communication in other paths, when remote control does not have a model for actuation, and direct communication ****. The flow of processing by the side of remote control is explained. At step S1161, it stands by until there is directions actuation of a user. The remote control identification information for discriminating UI demand signal and the remote control itself for having UI sent from an object model at step S1162 is sent by the infrared approach. At step S1163, it is confirmed whether UI was received or not. At step S1164, it is confirmed after demand transmission whether fixed time amount progress was carried out. The remote control identification information for discriminating the remote control itself from UI demand signal for having UI sent from an object model at step S1165 is sent by different approaches from the dispatch path in step S1162, such as wireless LAN. Received UI is expressed as step S1166.
[0354] In this case, by the wireless LAN server 1041 which received UI demand signal, although UI demand signal directly transmitted to the model for actuation itself will be sent to the wireless LAN server 1041, since the model for actuation is unknown, the menu for choosing a model (function) is displayed first. And UI corresponding to the selected model is displayed. The wireless LAN server 1041 receives a model selection signal from remote control 960, and you may make it this UI transmit UI corresponding to that model to remote control 960, and may make it transmit two or more selectable UI from that menu with said menu.
[0355] [Operation gestalt 40] Drawing 117 is drawing showing the example which saves as hysteresis the actuation and action which the user performed, and time of day with the important information in connection with it.
[0356] Here, it explains the actuation and action which the user performed, and flowing when saving time of day as hysteresis with the important information in connection with it.
** A user sets a document to FAX963 and directs to transmit to Mr. a of A company with a user (addresser) name.
** FAX963 is a document by directions of Mr. Tom while transmitting a document according to directions. The data sent to Mr. a are told to a server 1041 with the sent document and sending time of day.
** A server 1041 saves the received data as hysteresis information while saving the received document as a file [File ABC] of a suitable identifier.
[0357] Drawing 118 is a flow chart in the example which saves as hysteresis the actuation and action which the user performed, and time of day with the important information in connection with it which shows the example of processing by the side of remote control. The flow of processing by the side of remote control is explained.
[0358] At step S1181, it stands by until there is directions actuation of a user. The remote control identification information for discriminating the remote control itself from the demand signal over the directions actuation which the user performed at step S1182, and the user identification information for identifying the user itself are sent by approaches, such as infrared ray communication. At step S1183, it stands by until UI from where is sent. Received UI is expressed as step S1184.
[0359] Drawing 119 is a flow chart which shows the example of the actuation and action which the user performed, and the processing by the side of an object model in the example which saves time of day as hysteresis with the important information in connection with it. The flow of processing by the side of an object model is explained.
[0360] At step S1191, it stands by until there is a demand signal from remote control 960. At step S1192, processing corresponding to the demand signal from remote control 960 is performed. In the case of the example of drawing 117 , the document which the user set will be

read and it will transmit to Mr. a of A company. At step S1193, the remote control identification information received from remote control 960, user identification information, their own object model identification information, and the important information related to performed action are transmitted to a server 1041. In the case of the example of drawing 117 , it is a document by directions of Mr. Tom. The sending document itself which is the important information in connection with this data for the data sent to Mr. a is transmitted to a server 1041 with sending time of day.

[0361] Drawing 120 is a flow chart in the example which saves as hysteresis the actuation and action which the user performed, and time of day with the important information in connection with it which shows the example of processing by the side of a server. Moreover, drawing 121 is drawing showing an example of the updated hysteresis information as a result of this processing. The flow of processing by the side of a server is explained.

[0362] At step S1201, it stands by until there is a demand signal from an object model. At step S1202, the important information in connection with the received data is saved. Document with which Mr. Tom directed transmission in the case of the example of drawing 117 File ABC It saves by carrying out.

[0363] At step S1203, hysteresis information is updated according to the received data. the case of the example of drawing 117 — Mr. Tom — 1996/7/5 — having sent the document to Mr. a of A company is recorded on 10:00 with the file name saved at step S1201. the data that drawing 121 is the example of the updated hysteresis information, and Mary copied the 10 section of FileXYZ(s) to 1996/7/3 — 1996/7/5 — the data that Mr. Tom transmitted File ABC to Mr. a of A company are added to 10:00. UI that processing was completed correctly is sent to the remote control which the remote control identification information received from the object model shows at step S1204.

[0364] [Operation gestalt 41] Fig. 122 and 123 is drawing showing the example which performed hysteresis and operated it to origin, after saving [action / which the user performed / the actuation and action] time of day as hysteresis with the important information in connection with it.

[0365] Here, after saving [action / which the user performed / the actuation and action] time of day as hysteresis with the important information in connection with it, it explains flowing when having performed hysteresis and operating it to origin.

** Direct that remote control 960 shows Mr. Tom's hysteresis toward a copy machine 962.

** A copy machine 962 tells that it shows Mr. Tom's hysteresis as the server 1041 which manages hysteresis based on these directions.

** A server 1041 sets to UI only hysteresis with which Mr. Tom was concerned with reference to hysteresis information, send to a copy machine 962, and a copy machine 962 transmits this UI to remote control 960.

** Mr. Tom chooses specific data out of the hysteresis currently displayed on remote control 960, and he directs action. Since the data sent to A company are before needed anew in the case of this example, the data of "having transmitted File ABC to Mr. a of A company" tend to be chosen out of hysteresis, and it is going to pick out that data from the copy machine 962 in front of an eye by directing a "copy" as action.

** A copy machine 962 tells directions of "copying File ABC" from a user to a server 1041.

** A server 1041 sends a corresponding document "File ABC" to a copy machine 962.

** A copy machine 962 prints the document received from the server 1041.

[0366] Although he was trying to choose the data of "having transmitted File ABC to Mr. a of A company" out of hysteresis in the above in order that a user might pick out required data from the copy machine 962 in front of an eye When the name "File ABC" of a document to output is known, it replaces with hysteresis and the list of files is displayed, a file name can be chosen from the inside, or a direct file name can also be inputted.

[0367] Moreover, it can also be aimed at the document saved at PC on a network although considered as the document which saved the document to take out above at the server 1041 while transmitting by FAX963.

[0368] Drawing 124 is drawing showing the example of a configuration of the remote control 960

used with the above operation gestalt.
[0369] 1241 is a display and displays with liquid crystal. Furthermore, the resistance film is attached to the display 1241 and information can be inputted using a pen 1242. This input may choose the carbon button on a screen with a pen 1242. Furthermore, a character recognition function can be prepared and the alphabetic character written with the pen 1242 can also be inputted.
[0370] The inputted information can be transmitted to other devices from the communications department 1243. Moreover, the interior of equipment is equipped with the storage section 1245 with CPU1244 for control, and the information received from input or the communications department 1243, the hysteresis of actuation, etc. are memorized. A SRAM card, SIMM, HDD, etc. can be used as the storage section 1245. Moreover, it is dc-battery actuation and is dripproof.
[0371] Drawing 125 is drawing showing other examples of a configuration of the remote control 960 used with the above operation gestalt.
[0372] 1251 is a display and displays by liquid crystal or CRT. Furthermore, a touch panel can also be added to a display 1251 as an option. Thereby, information can be inputted using a finger, a pen, etc. 1252 is the input section which inputs information by actuation of a carbon button. The inputted information can be transmitted to other devices from the communications department 1253. Moreover, the interior of equipment is equipped with the storage section 1255 with CPU1254 for control, and the information received from input or the communications department 1253, the hysteresis of actuation, etc. are memorized. A SRAM card, SIMM, HDD, etc. can be used as the storage section 1255.
[0373] Remote control of drawing 125 can be used as carbon button remote control, even if it removes the storage section 1255. Moreover, even if it removes the communications department 1253, it can be used as an electronic memo pad (PC). Moreover, using a touch panel, even if it removes the input section 1252, as shown in drawing 124 , it can be used.
[0374] Drawing 126 is drawing showing other examples of a configuration of the remote control 960 used with the above operation gestalt.
[0375] 1261 is a display and displays with liquid crystal. 1262 is the input section which inputs information by actuation of a carbon button. The inputted information can be transmitted to other devices from the infrared communications department 1263. Moreover, the interior of equipment is equipped with the storage section 1265 with CPU1264 for control, and the information received from input or the infrared communications department 1263, the hysteresis of actuation, etc. are memorized. A SRAM card, SIMM, HDD, etc. can be used as the storage section 1255. Furthermore, PCMCIA slot 1266 is formed, for example, a PCMCIA card is inserted, it becomes connectable according to a PCMCIA bus, and two communication paths can be used. Moreover, the infrared communications department 1263 is only transmission by luminescence, and you may make it reception use a PCMCIA bus. Of course, it is not necessary to use connection by the PCMCIA bus.
[0376] In addition, in the range which can realize the function of the above-mentioned operation gestalt, even if it applies this invention to the system which consists of two or more devices (for example, the body of a computer, an interface device, a display, etc.), it may be applied to the equipment which consists of a single device. Moreover, it aims at operating various devices so that the function of the operation gestalt mentioned above may be realized. To the computer in the equipment connected with these various devices, or a system The program code of the software which realizes the function of the operation gestalt mentioned above is supplied, and the supplied program is followed. By computer (or CPU and MPU) of the system or equipment What was carried out by operating said various devices is contained in the range of the invention in this application. Moreover, that program code itself and a means, for example, the storage which memorized this program code, to supply that program code to a computer will constitute this invention by realizing the function of the operation gestalt which the program code itself by which reading appearance was carried out from the storage in this case mentioned above.
[0377] As a storage for supplying this program code, a floppy disk, a hard disk, an optical disk, a magneto-optic disk, CD-ROM, CD-R, a magnetic tape, the memory card of a non-volatile, ROM,

etc. can be used, for example.
[0378] Moreover, also when the function of the operation gestalt mentioned above by performing the program code which the computer read is not only realized, but it collaborates with OS (operating system) which is working on a computer, or other application software based on directions of the program code and the function of the above-mentioned operation gestalt is realized, it cannot be overemphasized that this program code is contained in the range of the invention in this application.
[0379] Furthermore, after the program code by which reading appearance was carried out from a storage is written in the memory with which the functional expansion unit connected to the functional add-in board inserted in the computer or a computer is equipped, it is needless to say in being contained also when the function of the operation gestalt which performed a part or all of processing that the CPU with which the functional add-in board and functional expansion unit are equipped based on directions of the program code is actual, and mentioned above by the processing is realized.
[0380] What is necessary is just to store in the storage the program code corresponding to the flow chart explained previously, when applying the invention in this application to the above-mentioned storage.

[Translation done.]

* NOTICES *

JPO and NCIPI are not responsible for any
damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is drawing showing the system configuration of an operation gestalt.
[Drawing 2] It is drawing showing the functional configuration of an operation gestalt.
[Drawing 3] It is drawing showing the hardware configuration of each equipment of an operation gestalt.
[Drawing 4] It is the flow chart which showed the flow of processing of an operation gestalt.
[Drawing 5] It is drawing having shown the flow of the processing which chooses the optimal printer from two or more printers, and performs printing.
[Drawing 6] It is drawing explaining the case where remote control is used.
[Drawing 7] It is drawing showing the example at the time of reading a document from a scanner and transmitting to a specific printer.
[Drawing 8] It is drawing showing the example at the time of transmitting to the specific printer which reads a document from a scanner and cannot manage a scanner..
[Drawing 9] It is drawing showing the example at the time of transmitting to the specific printer which reads a document from a scanner and cannot manage a scanner.
[Drawing 10] It is drawing showing the example at the time of transmitting to the specific printer which reads a document from a scanner and cannot manage a scanner.
[Drawing 11] It is drawing showing the example in the case of notifying the condition of a printer.

[Drawing 12] It is a flow chart showing the procedure of the operation gestalt 8.
[Drawing 13] It is drawing showing the case where the information to file is told to a user in advance by filing processing.
[Drawing 14] It is drawing showing the case where judge the necessity of received data and unnecessary information is canceled.
[Drawing 15] It is the flow chart which shows the procedure of the operation gestalt 9.
[Drawing 16] It is drawing showing the information flow of the operation gestalt 9.
[Drawing 17] It is a flow chart showing the detailed procedure of JOB activation.
[Drawing 18] It is drawing showing the example of the extra sensitive information to read.
[Drawing 19] It is drawing showing the example of a JOB table.
[Drawing 20] It is drawing showing the example of Printing Window.
[Drawing 21] It is drawing showing the example of a JOB table.
[Drawing 22] It is drawing showing the content of <file A>.
[Drawing 23] It is a system configuration ****** Fig.
[Drawing 24] It is drawing showing the example of Question Window.
[Drawing 25] It is drawing showing the example of a JOB table.
[Drawing 26] It is drawing showing the example of schedule data.
[Drawing 27] It is drawing showing the example of an inquiry to a user.
[Drawing 28] It is drawing showing the example of a JOB table.
[Drawing 29] It is drawing showing the example of a JOB table.
[Drawing 30] It is drawing showing the example of change of the status of a printer.
[Drawing 31] It is drawing showing a printer status table.

[Drawing 32] It is drawing showing the example of a JOB table.
[Drawing 33] It is drawing showing the example of Question Window.
[Drawing 34] It is drawing showing the example of a JOB table.
[Drawing 35] It is drawing showing the example of change of the status of a printer.
[Drawing 36] It is drawing showing the rule of a plan and action.
[Drawing 37] It is drawing showing the rule of a plan and action.
[Drawing 38] It is drawing showing action and the prerequisite over the object.
[Drawing 39] It is drawing showing the example of the property of each device.
[Drawing 40] It is drawing showing the example of the status of each device.
[Drawing 41] It is drawing showing the condition that two or more equipments are connected to the network.
[Drawing 42] It is drawing showing the functional configuration for processing the operation gestalt 14.
[Drawing 43] It is the flow chart showing the flow of processing of the operation gestalt 14 of Maine.
[Drawing 44] It is a flow chart showing the flow of the processing when controlling other equipments.
[Drawing 45] It is a flow chart showing the flow of processing in the case of processing with its own equipment.
[Drawing 46] The directed printer is drawing having shown the example which outputs by different printer.
[Drawing 47] The directed printer is drawing having shown the example which transmits JOB to other printers.
[Drawing 48] A user's printer is drawing having shown the example which transmits JOB to the printer of a user's going-out place.
[Drawing 49] It is the flow chart which showed the flow of processing of the operation gestalt 16.

[Drawing 50] It is the conceptual diagram of processing of the operation gestalt 16.
[Drawing 51] It is drawing showing the flow of JOB of the operation gestalt 17.
[Drawing 52] It is a flow chart showing the flow of processing of the print JOB automatic setting section.
[Drawing 53] It is drawing showing two or more printing time amount and amount of the toner used per character of the printer used.
[Drawing 54] It is drawing showing the parameter which the user specified as the content of the print JOB.
[Drawing 55] It is a flow chart showing the flow of processing of the print JOB automatic modification section.
[Drawing 56] It is drawing showing the parameter which the user specified as the content of the print JOB.
[Drawing 57] It is drawing showing the flow of JOB of the operation gestalt 19.
[Drawing 58] It is drawing explaining the example which sets up the parameter of Print JOB using natural language.
[Drawing 59] It is drawing explaining the example which sets up setting out of the parameter of Print JOB by the document itself.
[Drawing 60] It is drawing showing the flow of JOB of the operation gestalt 21.
[Drawing 61] It is the flow chart of processing by the print JOB simulation section.
[Drawing 62] It is the flow chart of the procedure of the printer system of the operation gestalt 22.
[Drawing 63] It is the external view of the printer of the printer system of the operation gestalt 22.
[Drawing 64] It is the flow chart which shows the procedure of the operation gestalt 23.
[Drawing 65] It is drawing showing the functional configuration of the system of the operation gestalt 23.
[Drawing 66] It is drawing showing the class [exterior / which perform overall processing of the

operation gestalt 23 / the system and the exterior] of I/O.
[Drawing 67] It is drawing showing the example which extracts a schedule from an electronic mail.
[Drawing 68] It is the flow chart which shows the concrete procedure of the operation gestalt 23.
[Drawing 69] It is drawing showing the example with which a schedule collides.
[Drawing 70] It is drawing showing an example when a user questions a system with voice.
[Drawing 71] It is the flow chart which shows the procedure of the operation gestalt 24.
[Drawing 72] It is drawing showing the example which adjusts the schedule which collides.
[Drawing 73] It is the flow chart which shows the procedure of RIPURANNINGU of the schedule which collides.
[Drawing 74] It is the flow chart which shows the procedure of RIPURANNINGU of an answer.
[Drawing 75] It is drawing showing a whole image also including I/O of the system of the operation gestalt 26.
[Drawing 76] It is a flow chart showing the flow of processing of the whole system of the operation gestalt 26.
[Drawing 77] It is a flow chart showing the flow of processing of the input Management section.
[Drawing 78] It is a flow chart showing the flow of processing of the Core section.
[Drawing 79] It is a flow chart showing the flow of processing of the output Management section.

[Drawing 80] It is a flow chart showing the procedure of data extraction processing.
[Drawing 81] It is drawing showing the example of the document set as the object of data extraction processing.
[Drawing 82] It is drawing explaining specific block reading processing.
[Drawing 83] It is the flow chart which shows the decision procedure of processing in which the date data were referred to.
[Drawing 84] It is drawing showing the information flow of the operation gestalt 27.
[Drawing 85] It is drawing showing the information flow of the operation gestalt 28.
[Drawing 86] It is drawing showing the information flow of the operation gestalt 28.
[Drawing 87] It is the flow chart which shows the procedure of the operation gestalt 28.
[Drawing 88] It is drawing showing the information of the common knowledge base.
[Drawing 89] It is drawing showing the information of the knowledge base of the field specified as the cover page.
[Drawing 90] It is drawing showing the example which performs processing with reference to the hysteresis performed in the past with voice.
[Drawing 91] It is the flow chart which shows the flow of processing of the operation gestalt 30.
[Drawing 92] It is drawing showing the example of an input-statement document.
[Drawing 93] It is drawing showing the content of the conversation of a system and a user.
[Drawing 94] It is the output-statement document which the system drew up, judging from conversation.
[Drawing 95] After asking a user, it is the flow chart of the example which carried out automatic activation of the required processing.
[Drawing 96] It is drawing showing the operation gestalt which operates a system with remote control.
[Drawing 97] It is drawing showing the example of a status monitor.
[Drawing 98] Remote control recognizes an object model and is drawing showing the example which displays corresponding UI.
[Drawing 99] Remote control recognizes an object model and is the flow chart of the processing by the side of remote control in the example which displays corresponding UI.
[Drawing 100] Remote control recognizes an object model and is the flow chart of the processing by the side of an object model in the example which shows corresponding UI.
[Drawing 101] Remote control is drawing showing reception and the example to display for UI from an object model.
[Drawing 102] Remote control is the flow chart of the processing [in / for an object model to

UI / reception and the example to display] by the side of remote control.
[Drawing 103] Remote control is the flow chart of the processing [in / for an object model to UI / reception and the example to display] by the side of an object model.
[Drawing 104] Remote control is drawing in which not receiving UI from an object model directly, but showing reception and the example to display for UI through wireless LAN etc.
[Drawing 105] Remote control is the flow chart of processing by the side of remote control [in / through wireless LAN etc. / for UI / reception and the example to display].
[Drawing 106] Remote control is the flow chart which shows the example of the processing [in / for UI / reception and the example to display] by the side of an object model through wireless LAN etc.
[Drawing 107] Remote control is the flow chart which shows the example of the processing [in / for UI / reception and the example to display] by the side of a server through wireless LAN etc.

[Drawing 108] It is drawing showing reception and the example to display for UI from which remote control differs for every user through wireless LAN etc.
[Drawing 109] It is the flow chart of processing by the side of remote control [in / for UI from which remote control differs for every user through wireless LAN etc. / reception and the example to display].
[Drawing 110] It is the flow chart of the processing [in / for UI from which remote control differs for every user through wireless LAN etc. / reception and the example to display] by the side of an object model.
[Drawing 111] It is the flow chart of the processing [in / for UI from which remote control differs for every user through wireless LAN etc. / reception and the example to display] by the side of a server.
[Drawing 112] It is drawing showing the table having shown UI determined from an object model and user identification information.
[Drawing 113] It is drawing showing the example which realizes the function which the model for actuation before an eye does not have.
[Drawing 114] It is drawing showing the example which realizes the function which the model for actuation before an eye does not have.
[Drawing 115] It is drawing showing the example of a response when there are not a model for actuation before an eye and direct communication ****.
[Drawing 116] It is the flow chart of processing by the side of remote control of the operation gestalt 39.
[Drawing 117] It is drawing showing the example which saves as hysteresis the actuation and action which the user performed, and time of day with the important information in connection with it.
[Drawing 118] It is the flow chart of processing by the side of remote control of the operation gestalt 40.
[Drawing 119] It is the flow chart of processing by the side of the object model of operation gestalt 40.
[Drawing 120] It is the flow chart of processing by the side of the server of the operation gestalt 40.
[Drawing 121] It is drawing showing an example of the updated hysteresis information.
[Drawing 122] It is drawing showing the example which operated it based on hysteresis.
[Drawing 123] It is drawing showing the example which operated it based on hysteresis.
[Drawing 124] It is drawing showing the example of a configuration of remote control.
[Drawing 125] It is drawing showing the example of a configuration of remote control.
[Drawing 126] It is drawing showing the example of a configuration of remote control.
[Drawing 127] It is drawing showing the information which specified whether an advance notification would be performed.
[Drawing 128] It is drawing showing an information flow in case the equipment according to the object of JOB does not exist.
[Drawing 129] It is drawing showing the example of a display of the window which proposes the

optimal approach to a user.
[Drawing 130] It is drawing having shown the semantics which the character string in a parameter setup expresses, and a demand item required in order to complete the semantics.

[Translation done.]

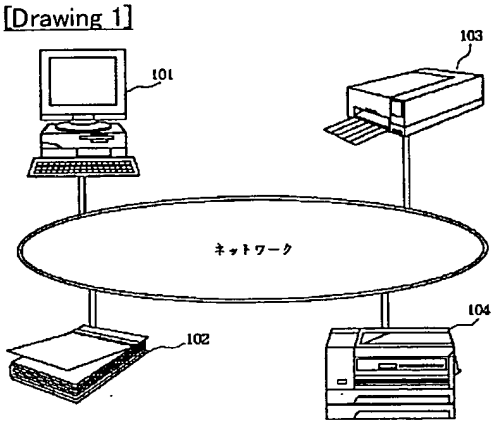
* NOTICES *

JPO and NCIPI are not responsible for any
damages caused by the use of this translation.

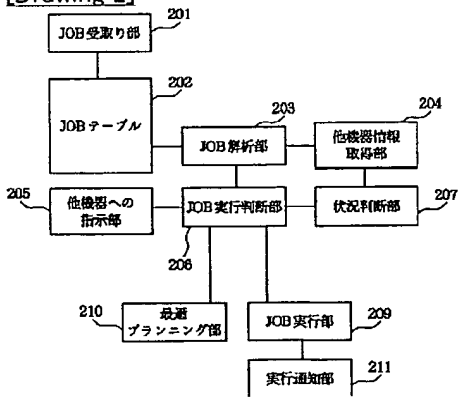
1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

[Drawing 1]



[Drawing 2]



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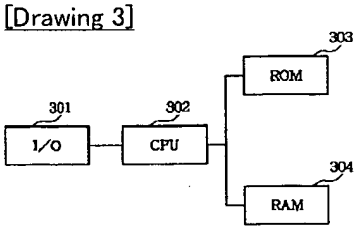
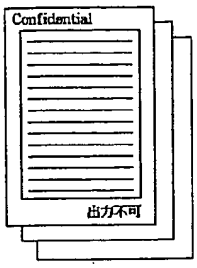


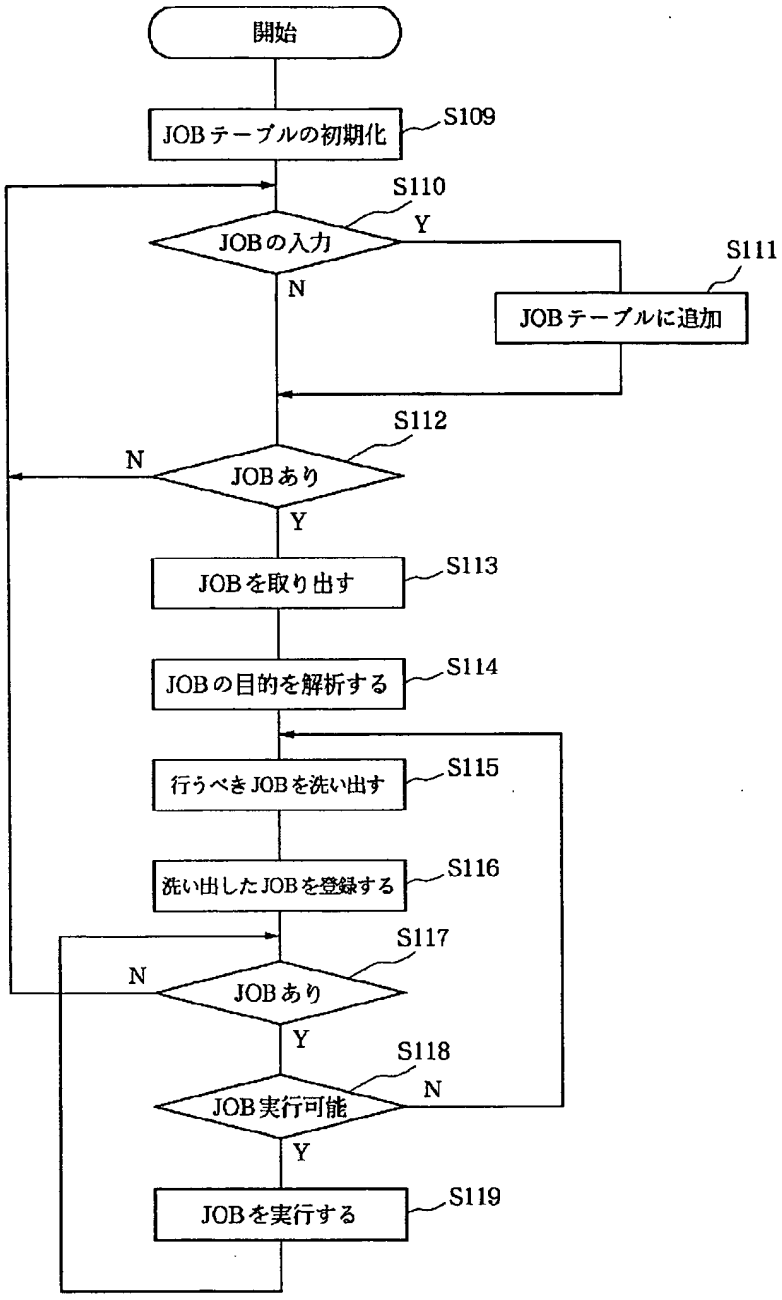
[Drawing 18]



[Drawing 19]

JOB実行条件	JOB実行内容
入力無し＆JOB無し＆ 電源OFF可能時間帯	電源OFF

[Drawing 4]



[Drawing 21]

JOB実行条件	JOB実行内容
無条件	入力を解析する
入力無し＆JOB無し＆電源OFF可能時間帯	電源OFF

[Drawing 22]

新商品の紹介
スポーツカーFFX2

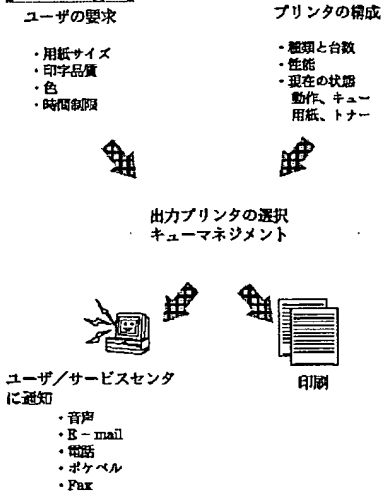
1996年12月世界初の
DXエンジン搭載の
新型車を発表しました。

お問い合わせは、
0120-12345まで！

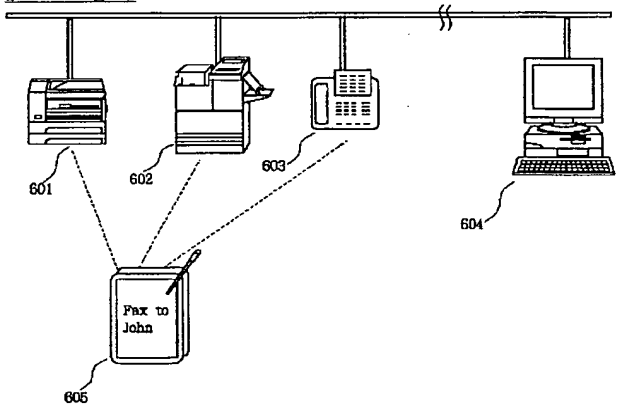
[Drawing 25]

JOB実行条件	JOB実行内容
入力無し＆10分間経過	利用者の応答が無い場合の対応をする
入力無し＆JOB無し＆電源OFF可能時間帯	電源OFF

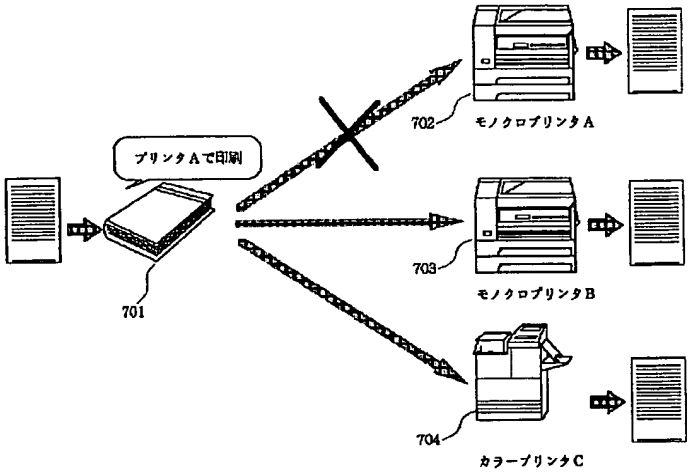
[Drawing 5]



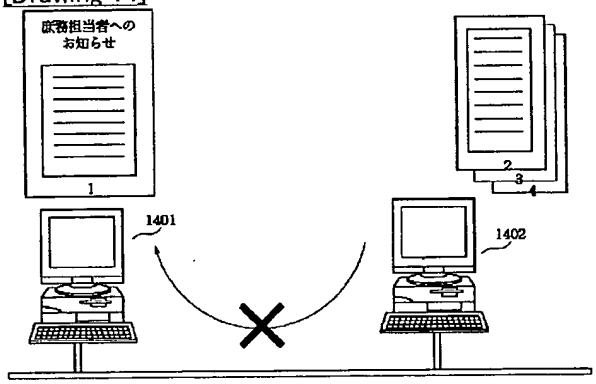
[Drawing 6]



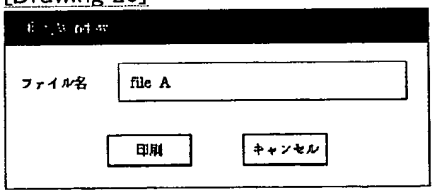
[Drawing 7]



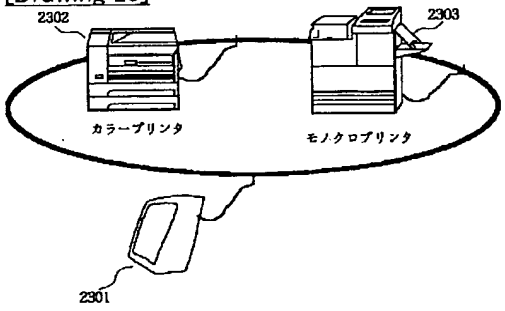
[Drawing 14]



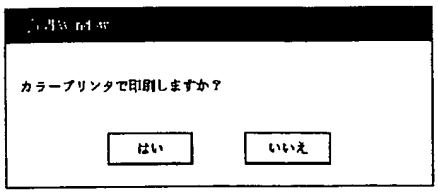
[Drawing 20]



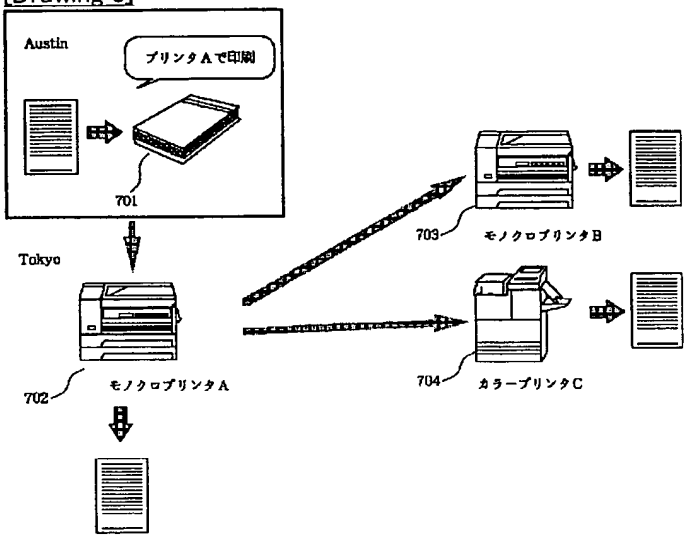
[Drawing 23]



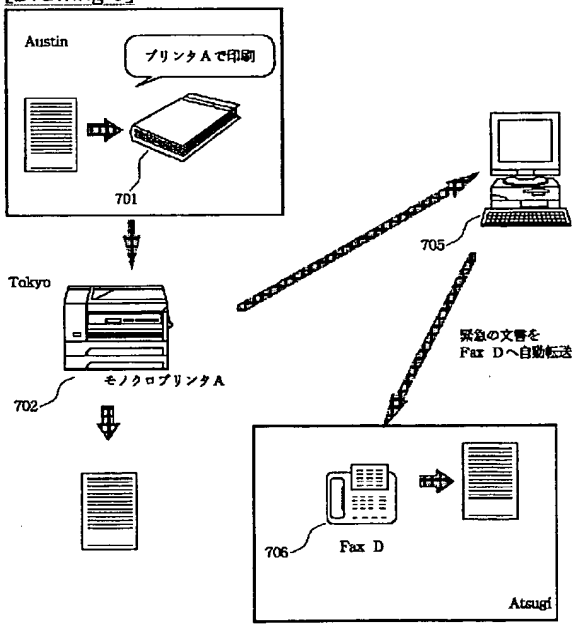
[Drawing 24]



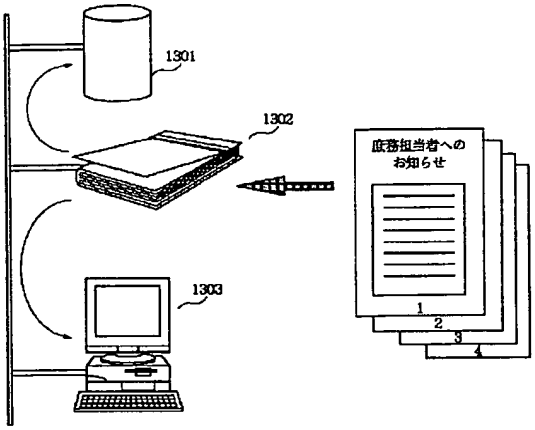
[Drawing 8]



[Drawing 9]



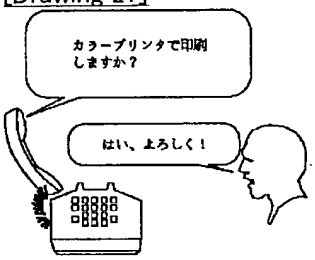
[Drawing 13]



[Drawing 26]

時間	予定	連絡先	使用予定資料
12/5 10:00~12:00	会議	内線 12345	無し
12/5 13:00~15:00	商談	03-3210-9876	file A

[Drawing 27]



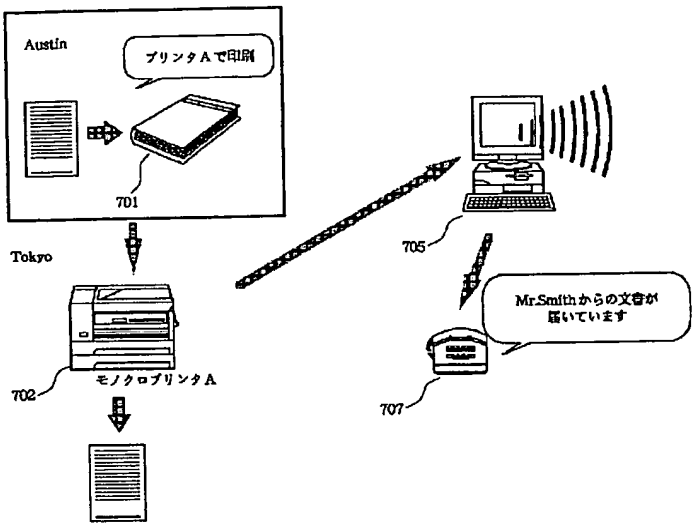
[Drawing 28]

JOB実行条件	JOB実行内容
入力無し	利用者の応答が無い場合の対応をする
入力無し&JOB無し&電源OFF可能時間帯	電源OFF

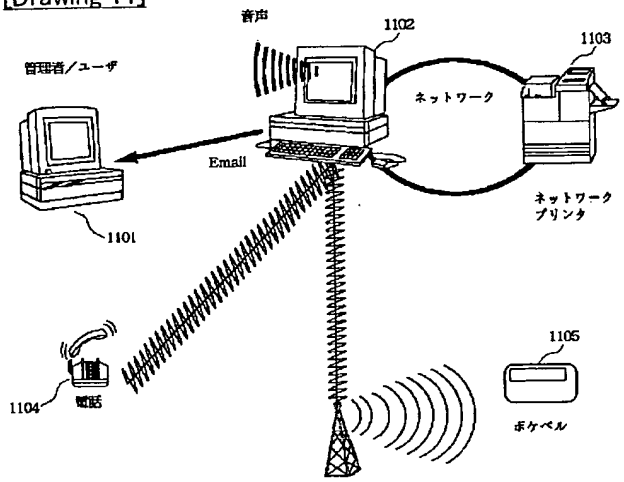
[Drawing 29]

JOB実行条件	JOB実行内容
プリンタステータスが印刷中以外になった	ステータスに対応した処理をする
入力無し&JOB無し&電源OFF可能時間帯	電源OFF

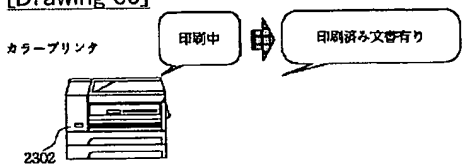
[Drawing 10]



[Drawing 11]



[Drawing 30]



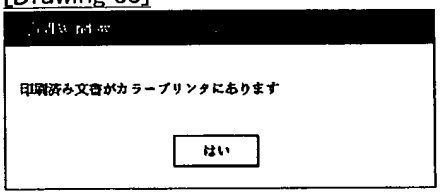
[Drawing 31]

プリンタステータス	ステータスの意味
正常	正常
印刷中	印刷中
印刷済み文書有り	以前に印刷された文書が トレイに残っています

[Drawing 32]

JOB実行条件	JOB実行内容
プリンタステータスが印刷済み文書有りのまま＆10分経過	印刷済み文書がある場合の対応
入力無し＆JOB無し＆電源OFF可能時間帯	電源OFF

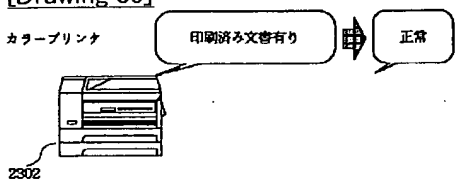
[Drawing 33]



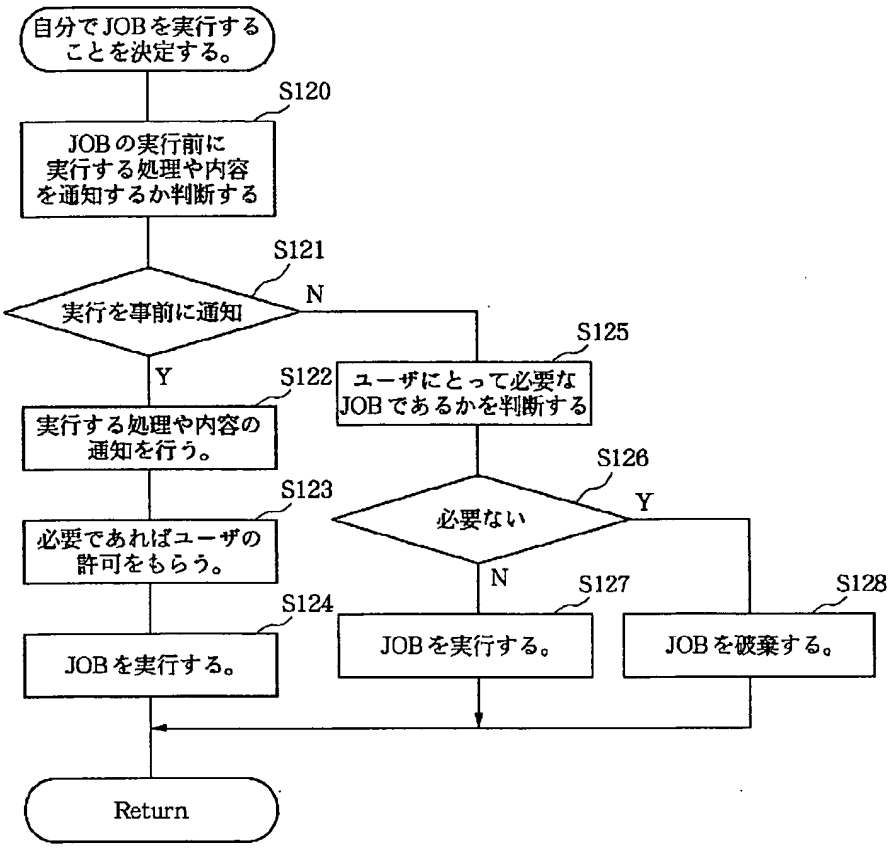
[Drawing 34]

JOB実行条件	JOB実行内容
プリンタステータスが印刷済み文書有り以外	印刷済み文書有りに対応したJOBを見直す
入力無し＆10分間経過	利用者の応答が無い場合の対応をする
入力無し＆JOB無し＆電源OFF可能時間帯	電源OFF

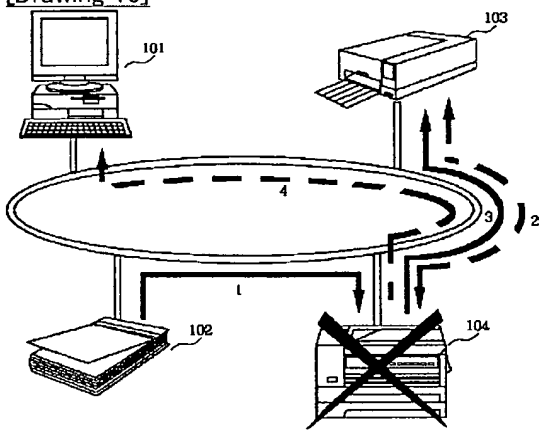
[Drawing 35]



[Drawing 12]



[Drawing 16]



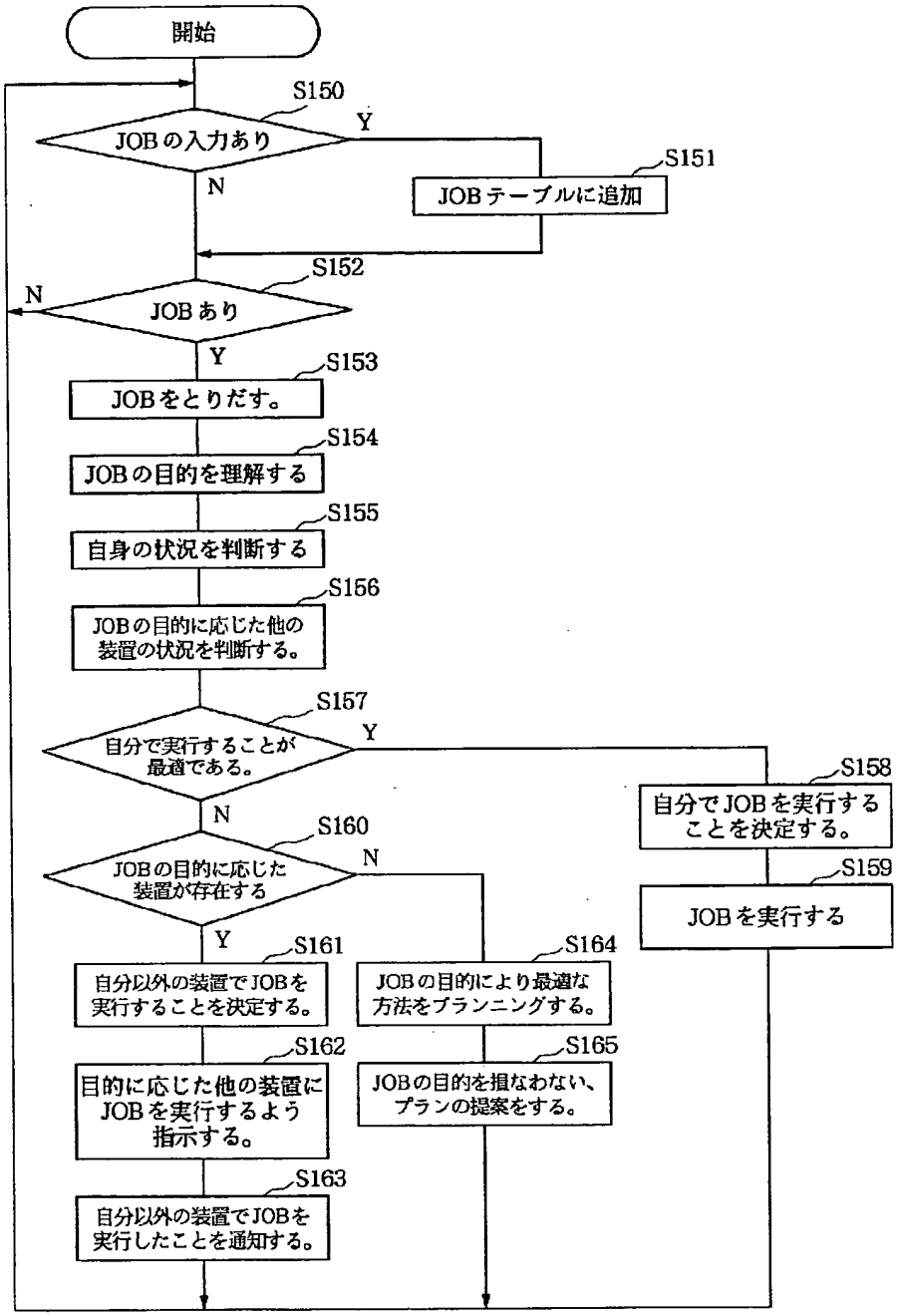
[Drawing 39]

プロパティ	原稿文書	カラープリンタ	白黒プリンタ
プリンタタイプ		インクジェット	レーザー
カラーか白黒か	カラー有り	カラー	白黒
ランニングコスト		1枚20円	1枚5円
印刷速度		毎分5枚	毎分20枚
原稿用紙サイズ	A4	A4	A3
出力用紙サイズ		A4	A3
使用可能用紙種類		通常、BJ、OHP	通常、OHP
拡大縮小可能か		不可能	50％～200％
レイアウト可能か		不可能	上下・左右・4分割
印刷の向き		変更可能	変更可能
給紙方法		手差し、カートリッジ	手差し、A3カートリッジ、A4カートリッジ
両面印刷可能か		不可能	可能
綴じ方向の指定		可能	可能
綴じ代の指定		可能	可能
フォント指定		可能	可能

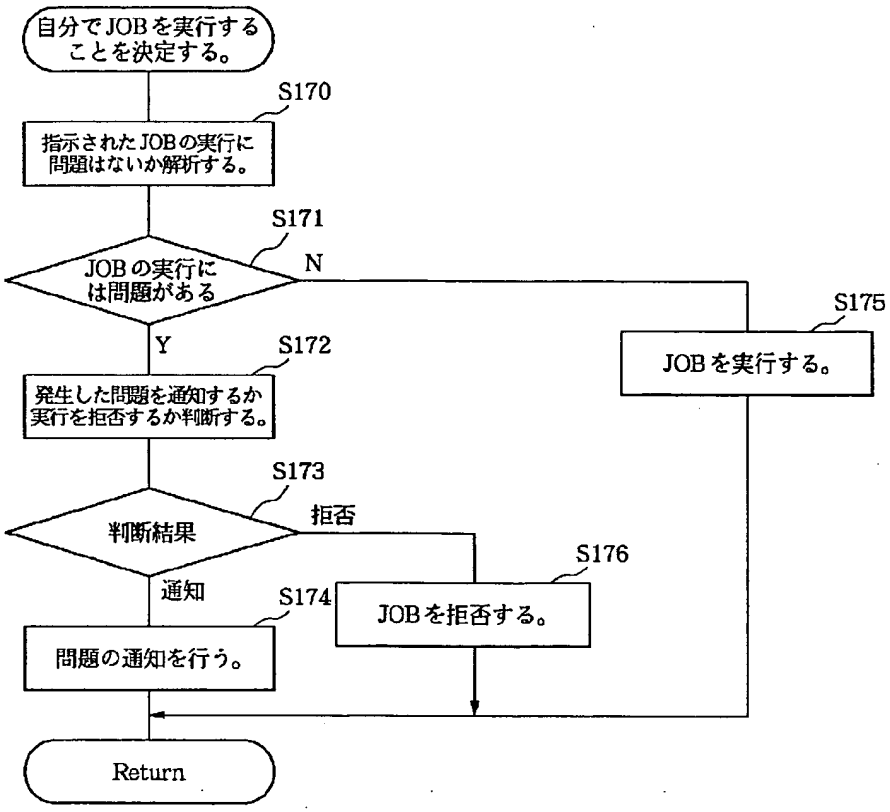
[Drawing 112]

	初心者	上級者
FAX	標準UI	標準UI ＋同報通信UI

[Drawing 15]


開始
S150
JOBの入力あり
Y
N
S151
JOBテーブルに追加
S152
JOBあり
N
Y
S153
JOBをとりだす。
S154
JOBの目的を理解する
S155
自身の状況を判断する
S156
JOBの目的に応じた他の装置の状況を判断する。
S157
目分で実行することが最適である。
Y
N
S158
自分でJOBを実行することを決定する。
S159
JOBを実行する
S160
JOBの目的に応じた装置が存在する
N
Y
S161
自分以外の装置でJOBを実行することを決定する。
S162
目的に応じた他の装置にJOBを実行するよう指示する。
S163
自分以外の装置でJOBを実行したことを通知する。
S164
JOBの目的により最適な方法をプランニングする。
S165
JOBの目的を損なわない、プランの提案をする。

[Drawing 17]



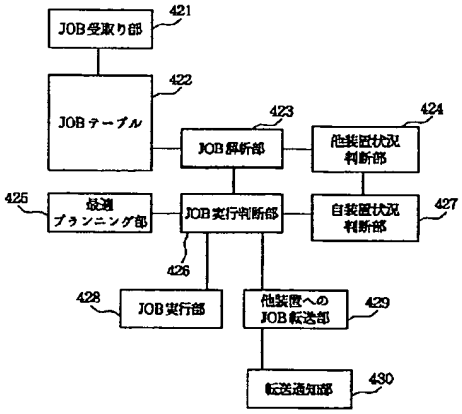
[Drawing 36]

ユーザの目的	前提条件	プラン&アクション
印刷済み文書取得	印刷済み文書有り	①ある場所を知る ②その場所へ行く ③印刷済み文書を取得
印刷済み文書有り	印刷元文書有り &要求を満足する文書 が印刷可能な印刷環境	①印刷指示
賛意表明	問い合せをした	①音声やマウス操作等による賛意表明操作
反意表明	問い合せをした	①音声やマウス操作等による反意表明操作

[Drawing 40]

ステータス	カラープリンタ	白黒プリンタ
動作状態	正常	正常
用紙残量	80%以上	80%以上
トナー残量	80%以上	80%以上
印刷済み文書	無し	[ユーザAの文書] [ユーザBの文書]

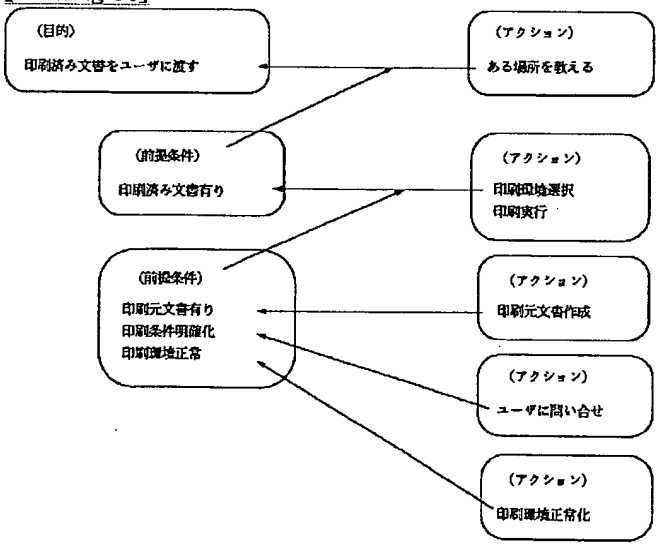
[Drawing 42]



[Drawing 37]

システムの目的	前提条件	プラン&アクション
ユーザの目的達成	システムの安定	①ユーザの目的理解 ②目的達成のプランニング ③実行
システムの安定	システムの異常	①システムの正常化
	実行中のJOB無し &電源OFF可能時間帯	①電源OFF
ユーザの目的理解	入力有り	①入力理解
印刷済み文書をユーザに渡す	印刷済み文書有り	①ある場所を教える
印刷済み文書有り	印刷元文書有り &印刷条件明確化 &印刷環境正常	①印刷環境選択 ②印刷実行
印刷元文書有り		①印刷元文書作成
印刷条件明確化		①ユーザに問い合せ
印刷環境正常	印刷環境の異常	①印刷環境正常化
ユーザの意志の取得	一定時間経過	①リプランニング

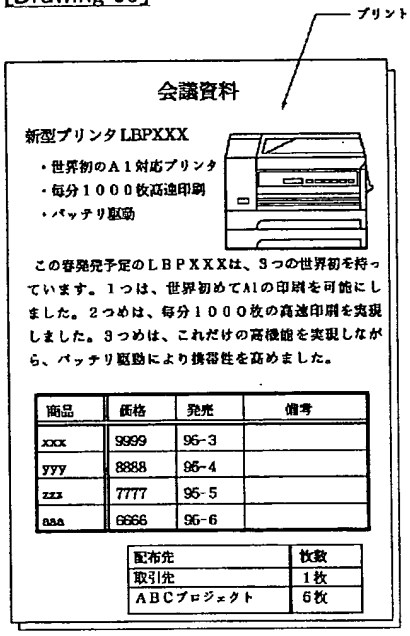
[Drawing 38]



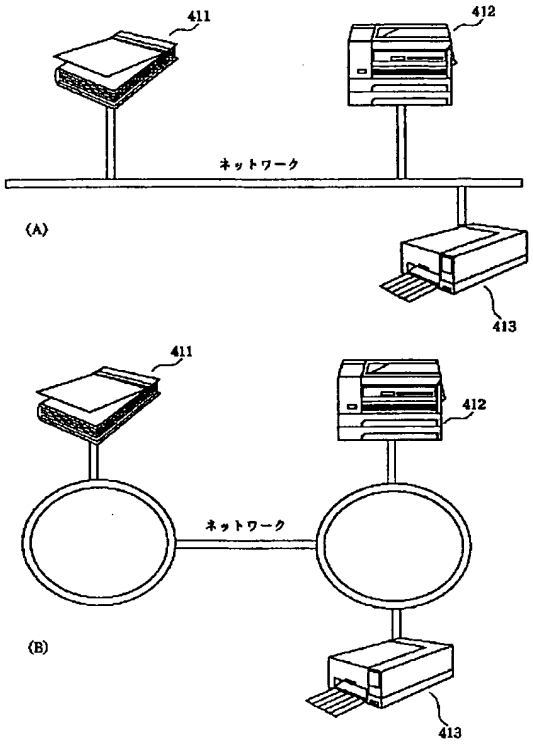
[Drawing 53]

品質	項目	プリンタ A	プリンタ B
1	1文字あたりの印刷時間	100ms	200ms
	1文字あたりのトナー使用量	100mg	200mg
2	1文字あたりの印刷時間	200ms	400ms
	1文字あたりのトナー使用量	200mg	400mg
3	1文字あたりの印刷時間	300ms	600ms
	1文字あたりのトナー使用量	300mg	600mg
4	1文字あたりの印刷時間	400ms	800ms
	1文字あたりのトナー使用量	400mg	800mg
5	1文字あたりの印刷時間	500ms	1000ms
	1文字あたりのトナー使用量	500mg	1000mg

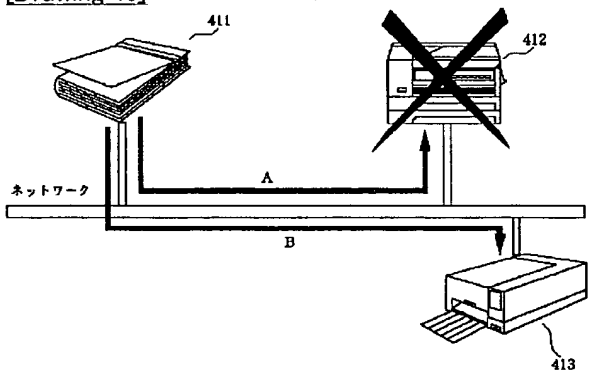
[Drawing 59]



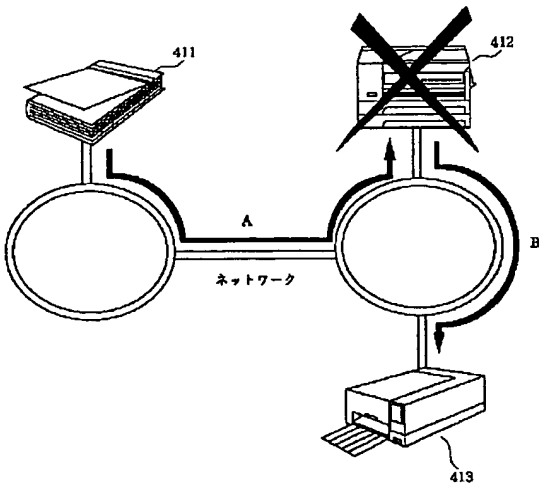
[Drawing 41]



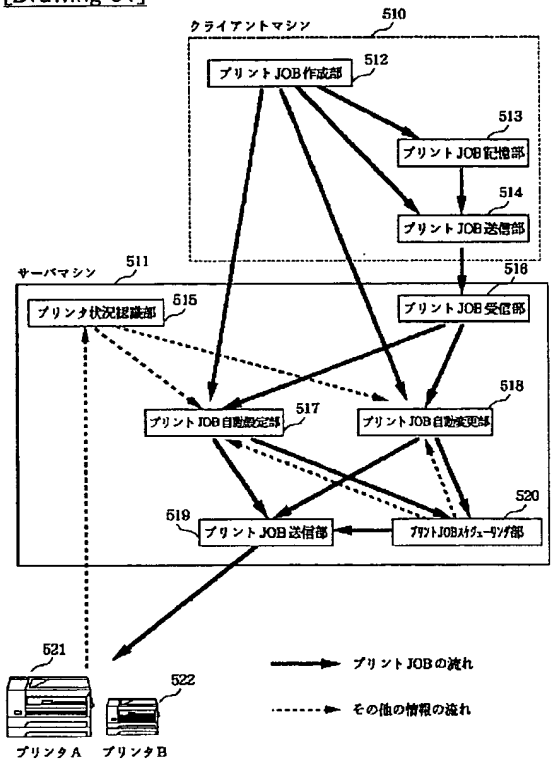
[Drawing 46]



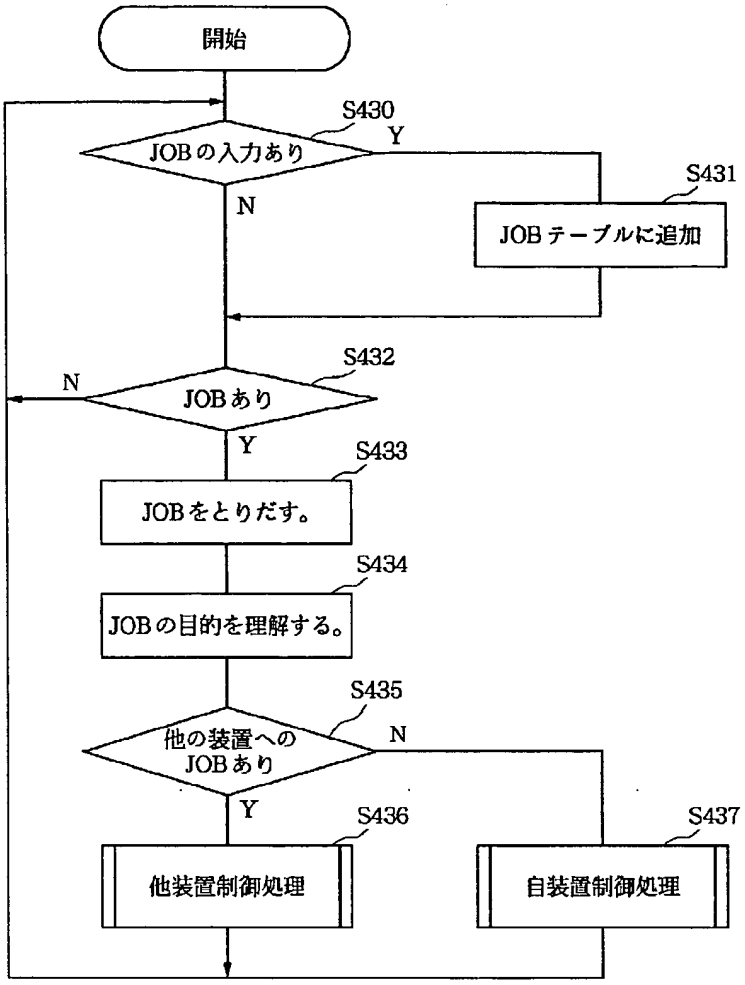
[Drawing 47]



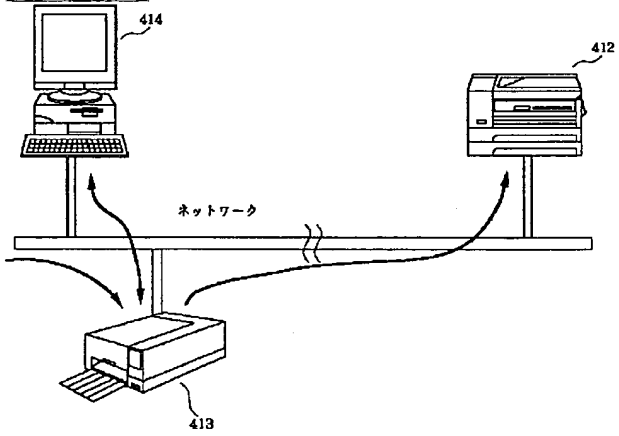
[Drawing 51]



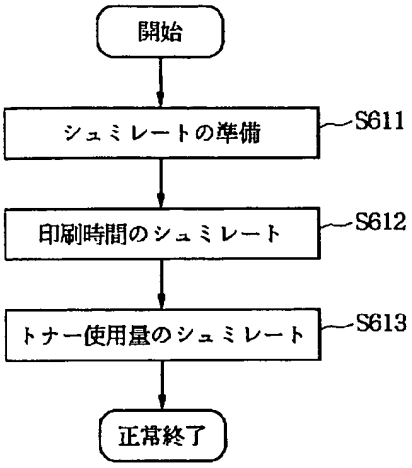
[Drawing 43]



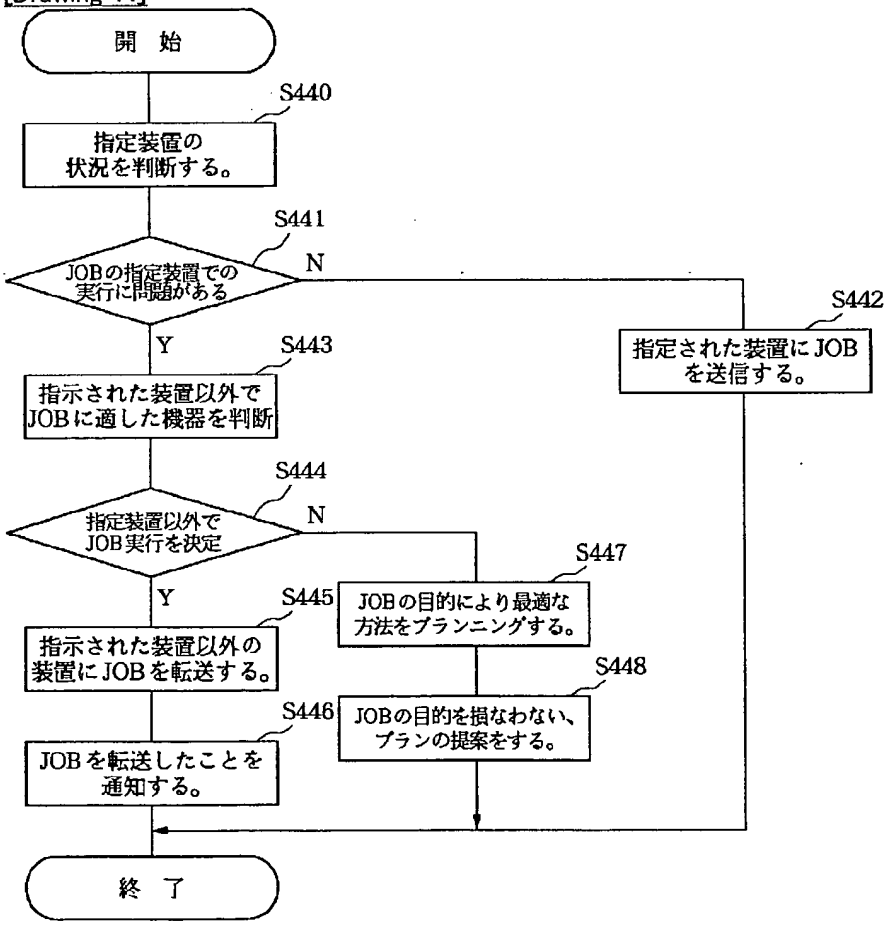
[Drawing 48]



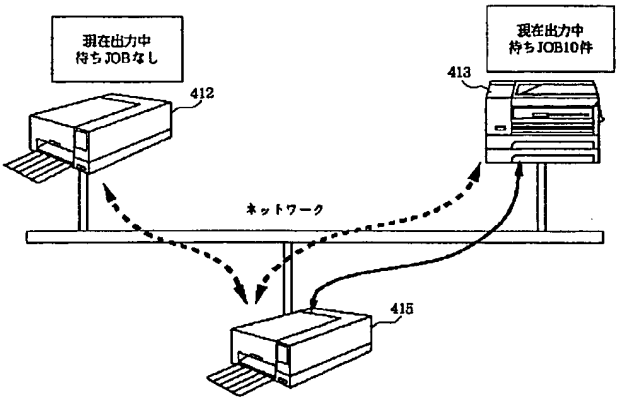
[Drawing 61]



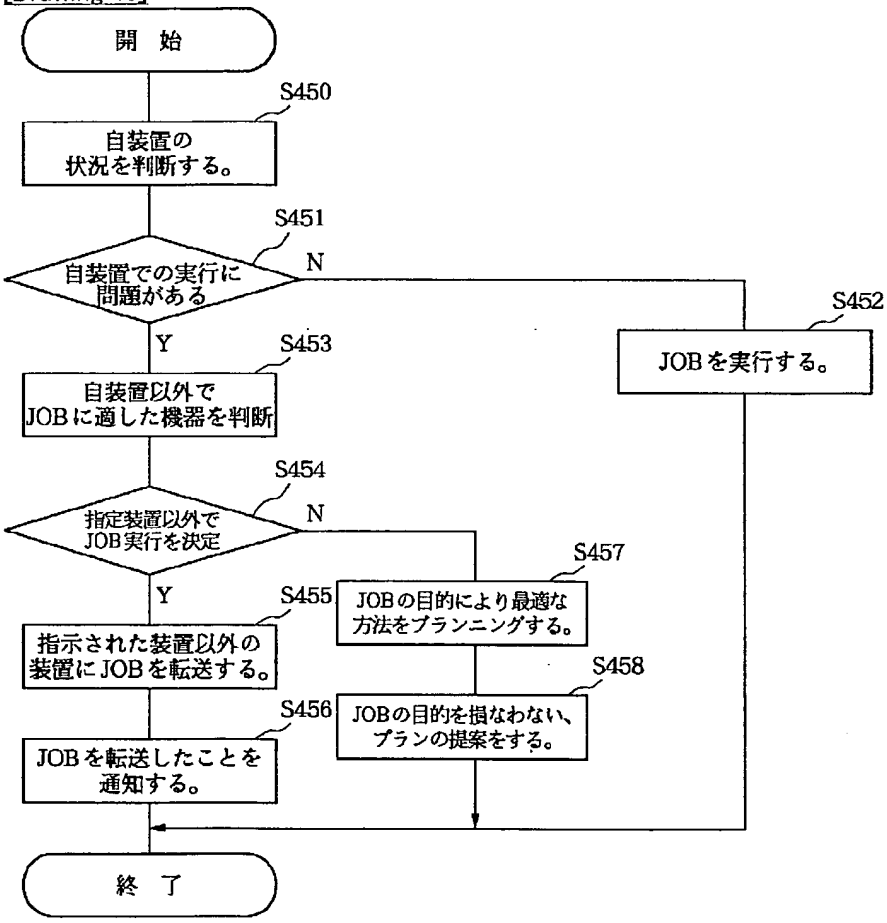
[Drawing 44]



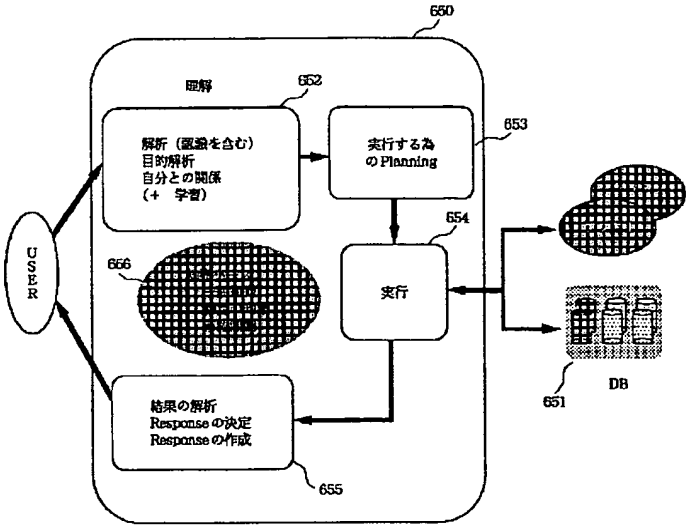
[Drawing 50]



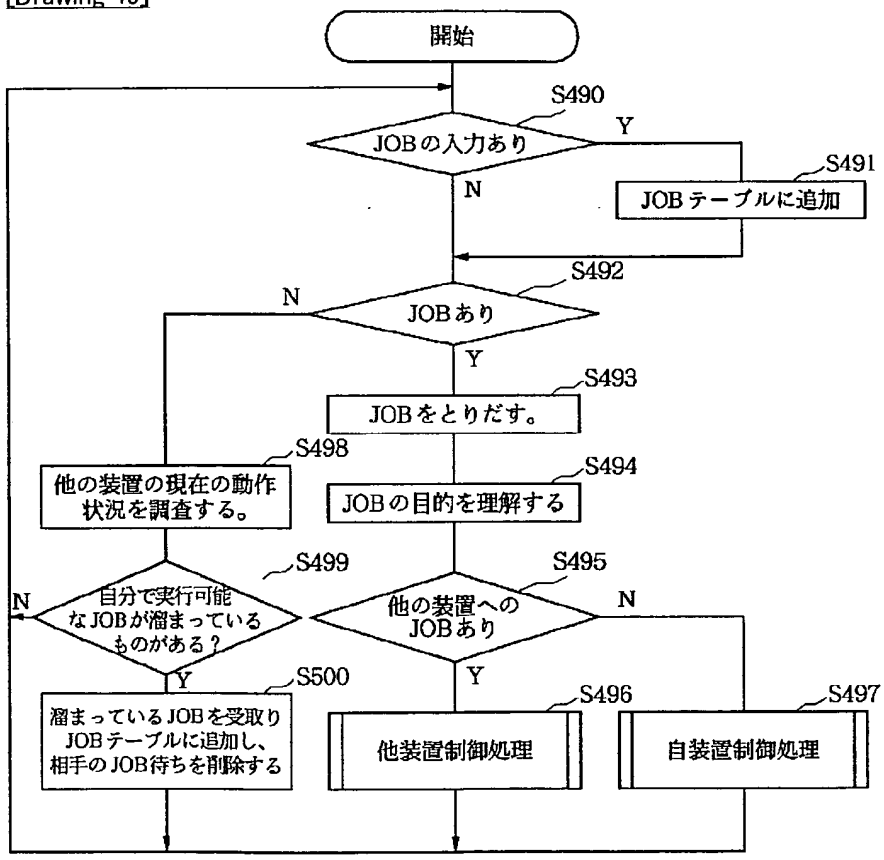
[Drawing 45]



[Drawing 65]

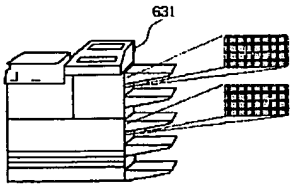


[Drawing 49]

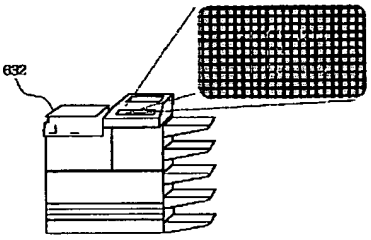


[Drawing 63]

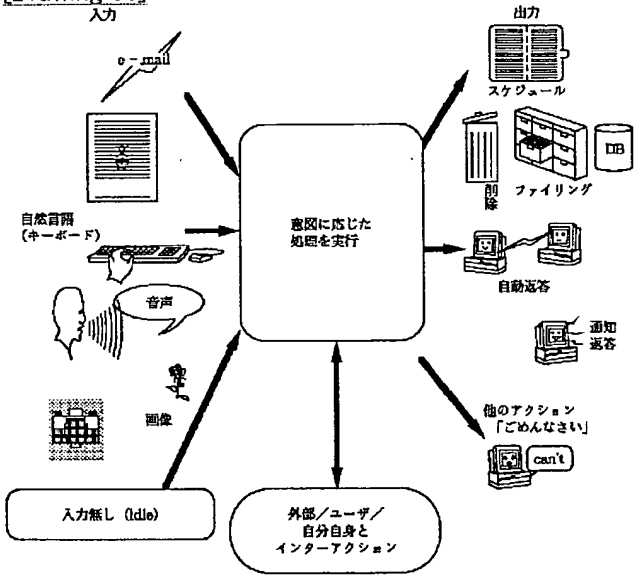
(a)



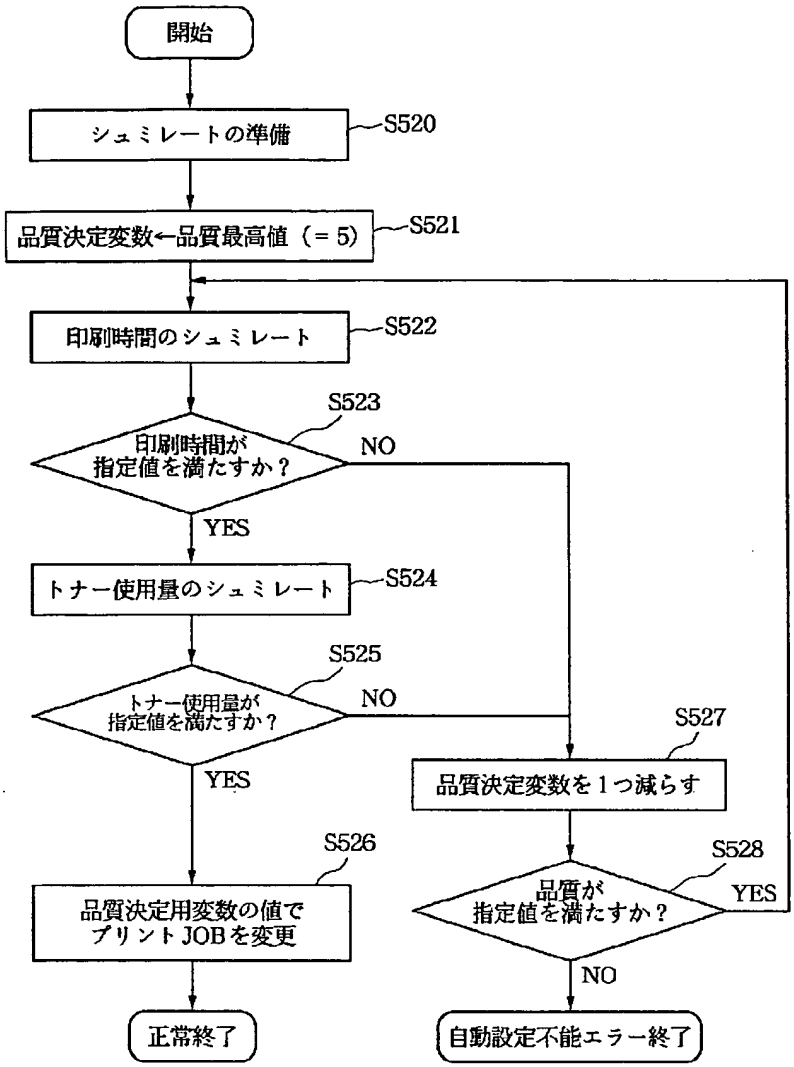
(b)



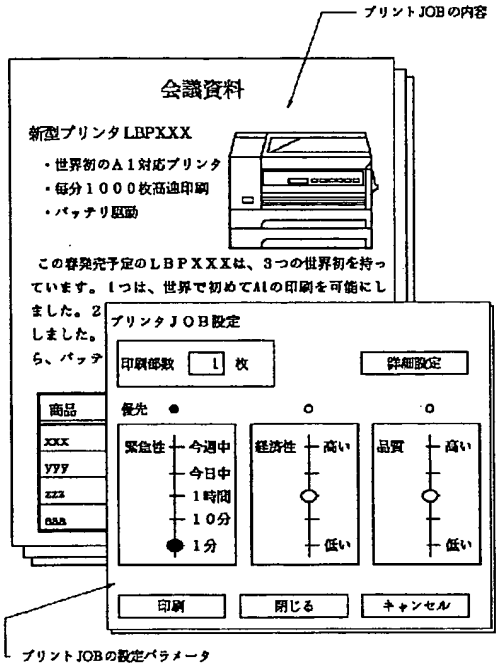
[Drawing 66]



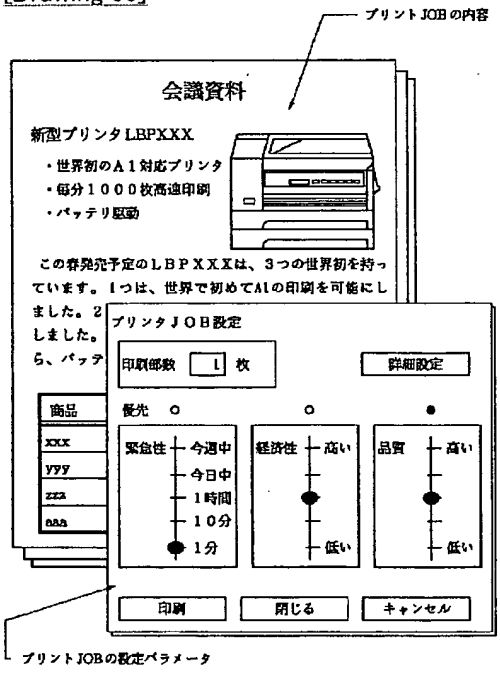
[Drawing 52]


開始
シュミレートの準備
S520
品質決定変数←品質最高値（＝5）
S521
印刷時間のシュミレート
S522
S523
印刷時間が
指定値を満たすか？
NO
YES
トナー使用量のシュミレート
S524
S525
トナー使用量が
指定値を満たすか？
NO
YES
S527
品質決定変数を1つ減らす
S526
品質決定用変数の値で
プリントJOBを変更
S528
品質が
指定値を満たすか？
YES
NO
正常終了
自動設定不能エラー終了

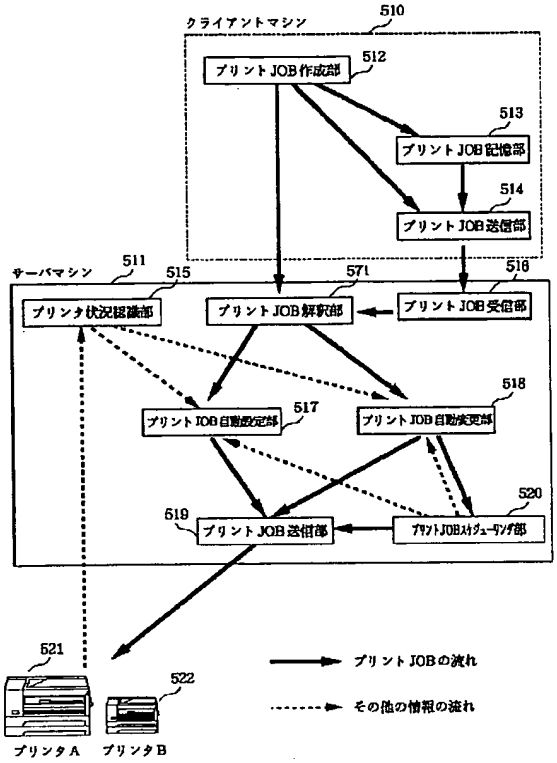
[Drawing 54]



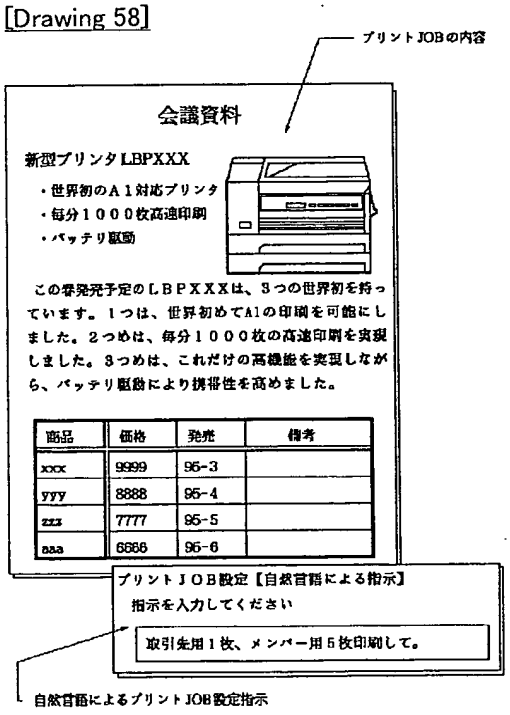
[Drawing 56]



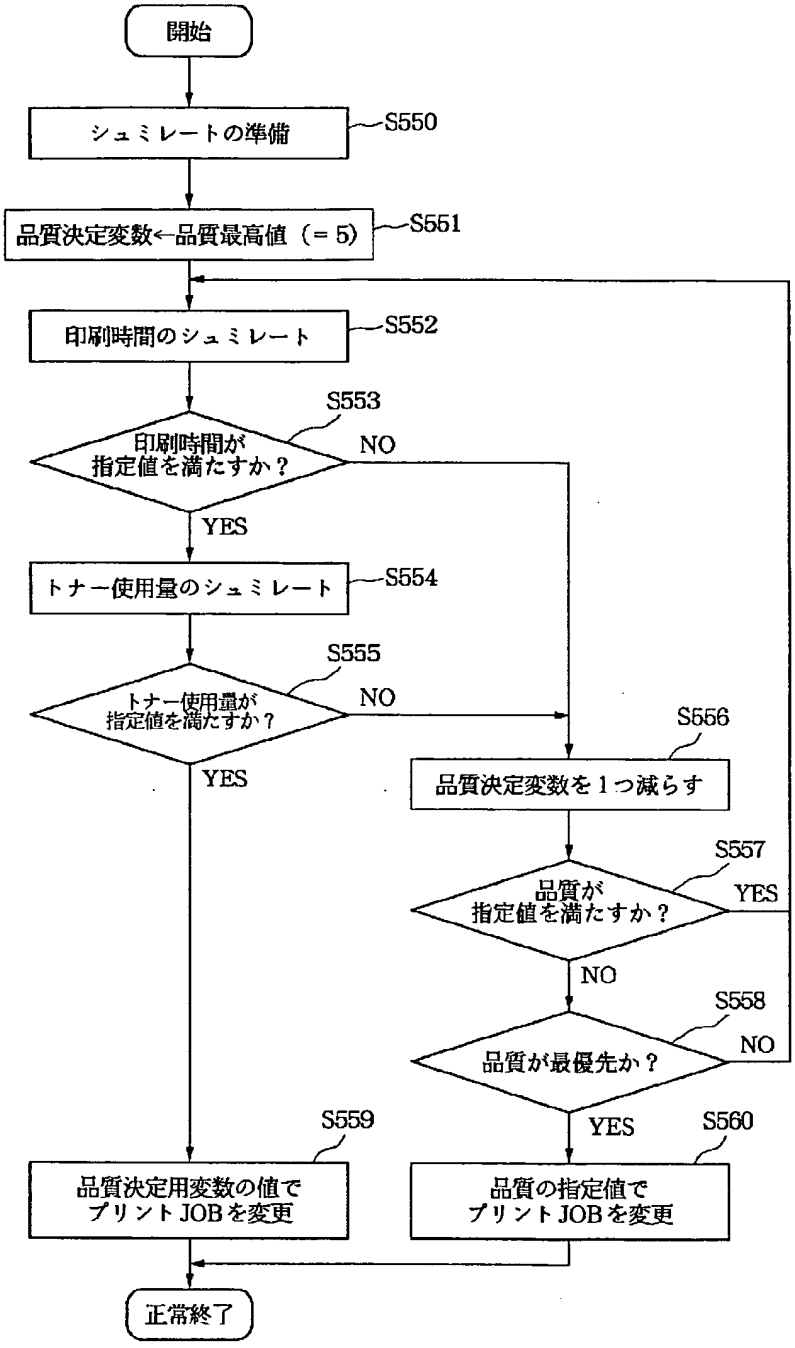
[Drawing 57]



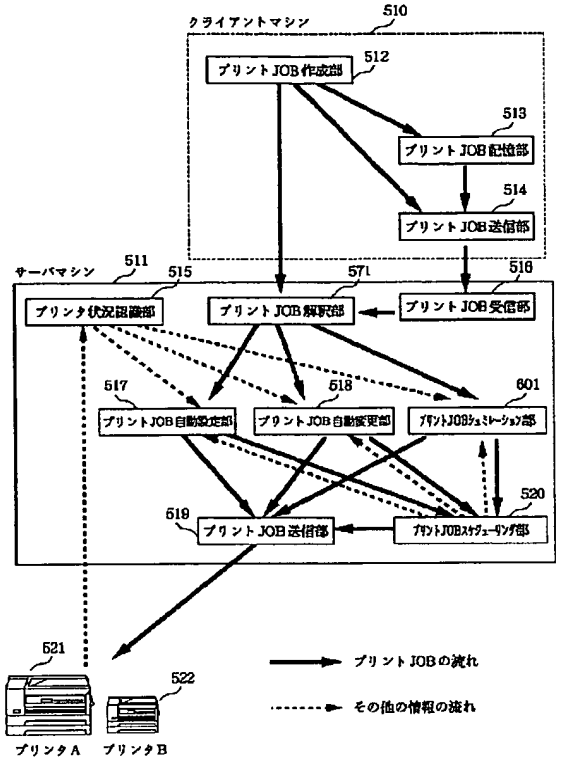
[Drawing 58]



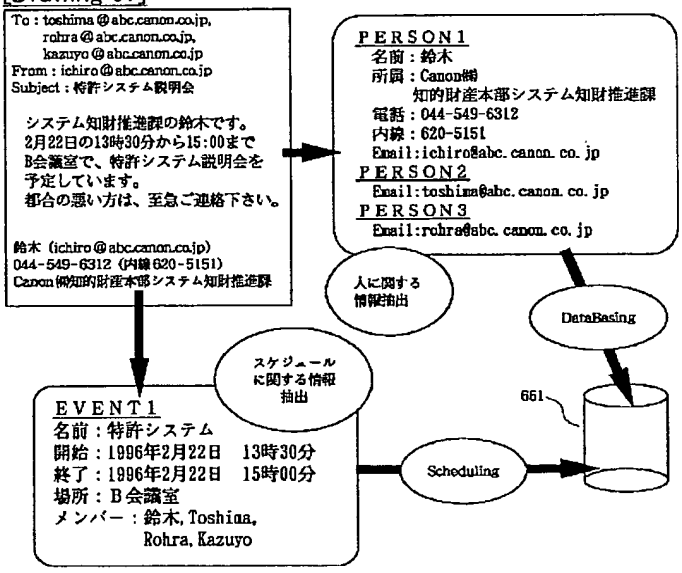
[Drawing 55]


開始
シュミレートの準備
S550
品質決定変数←品質最高値（＝5）
S551
印刷時間のシュミレート
S552
S553
印刷時間が
指定値を満たすか？
NO
YES
トナー使用量のシュミレート
S554
S555
トナー使用量が
指定値を満たすか？
NO
YES
S556
品質決定変数を1つ減らす
S557
品質が
指定値を満たすか？
YES
NO
S558
品質が最優先か？
NO
YES
S559
品質決定用変数の値で
プリントJOBを変更
S560
品質の指定値で
プリントJOBを変更
正常終了

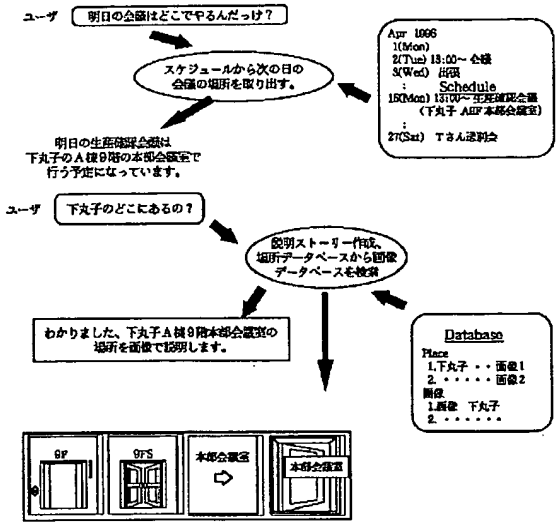
[Drawing 60]



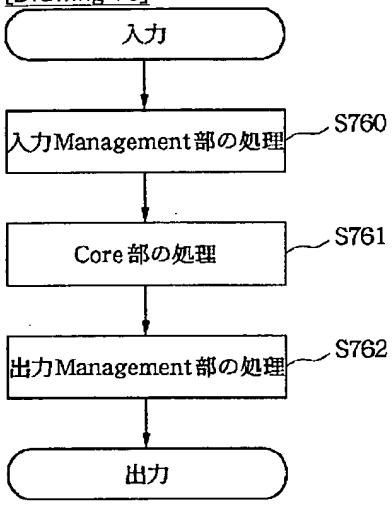
[Drawing 67]



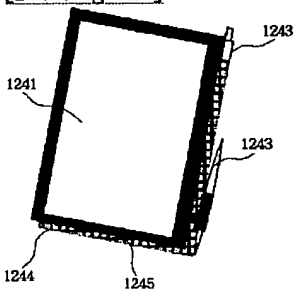
[Drawing 70]



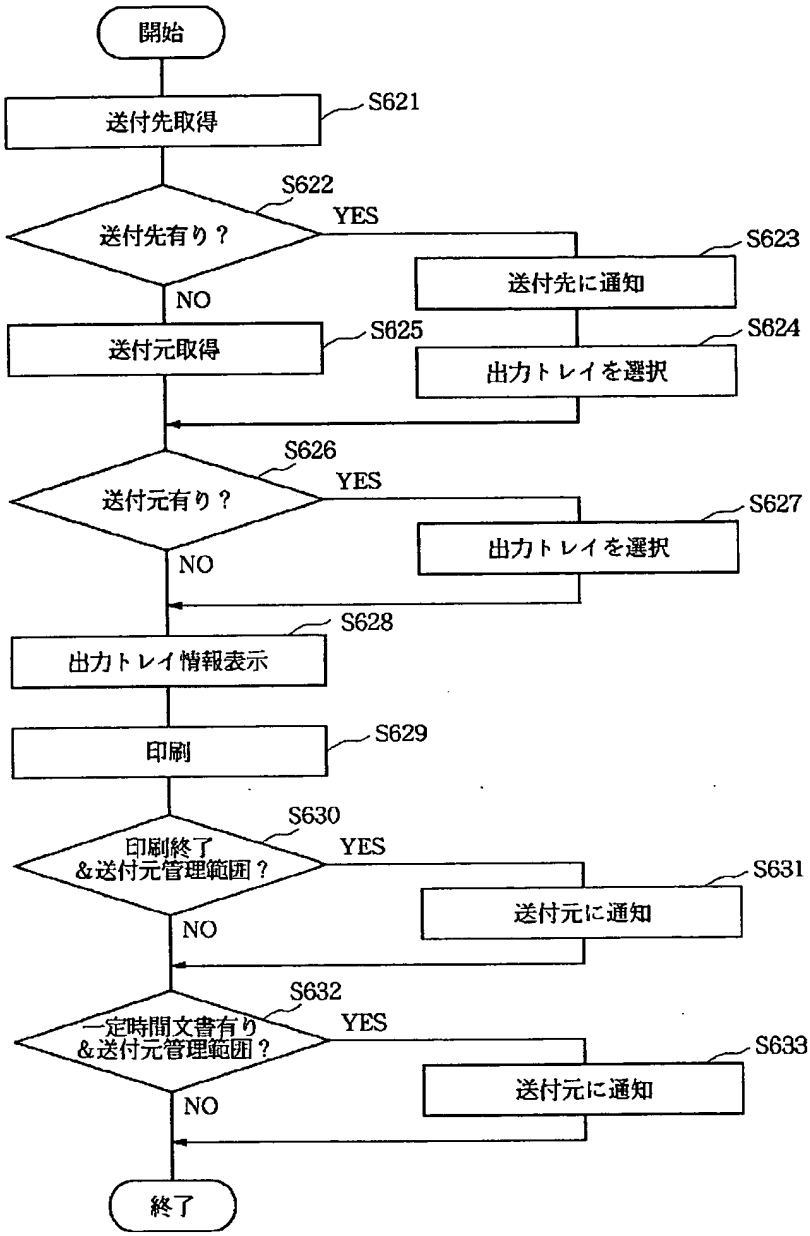
[Drawing 76]



[Drawing 124]



[Drawing 62]



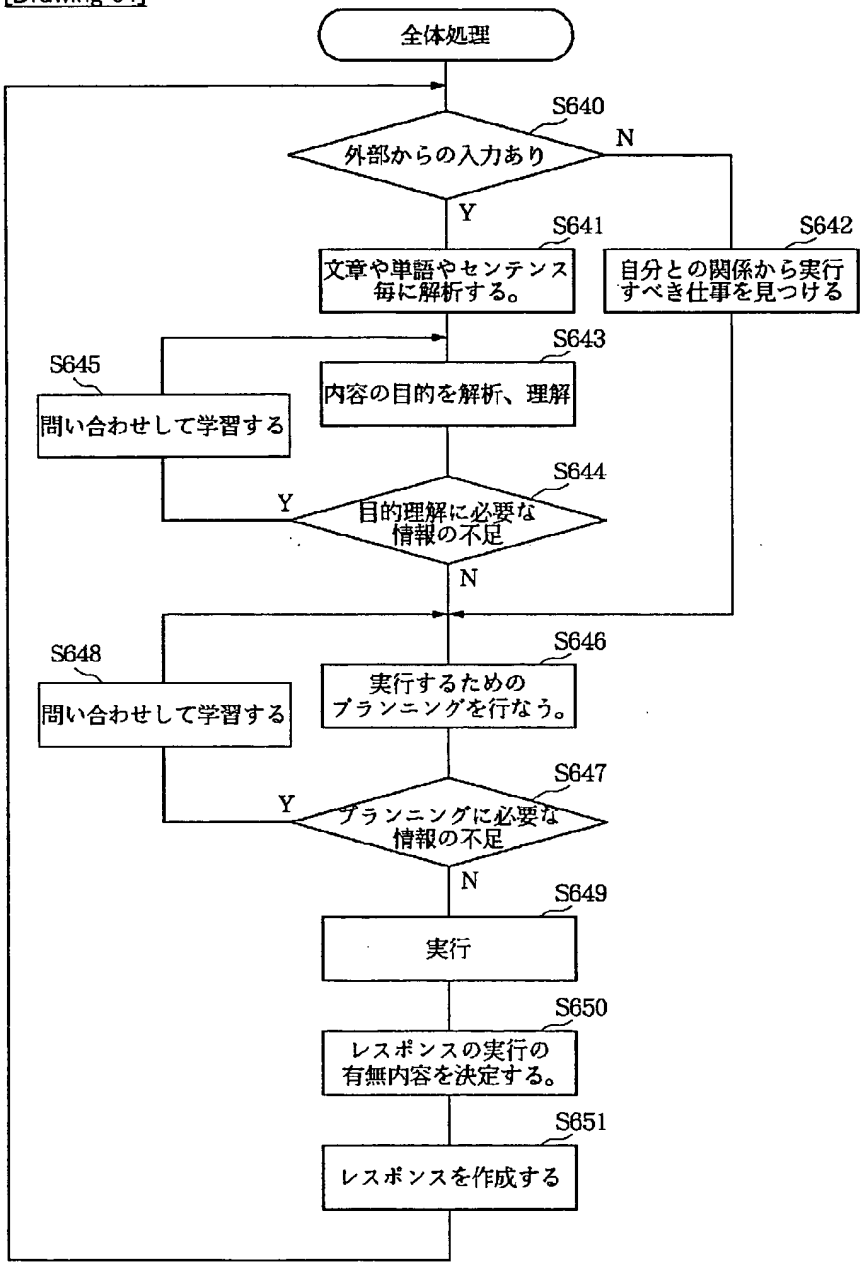
[Drawing 89]

文字列	概念	Role	Action
NotifyMe :	通知方法	送信者への通知方法	送信者に通知する
NotifyHim :	通知方法	受信者への通知方法	受信者に通知する
File :	directory名	ファイリング場所	ファイリングする
Keywords :	Keyword	index	indexを作成する
...	...	...	...

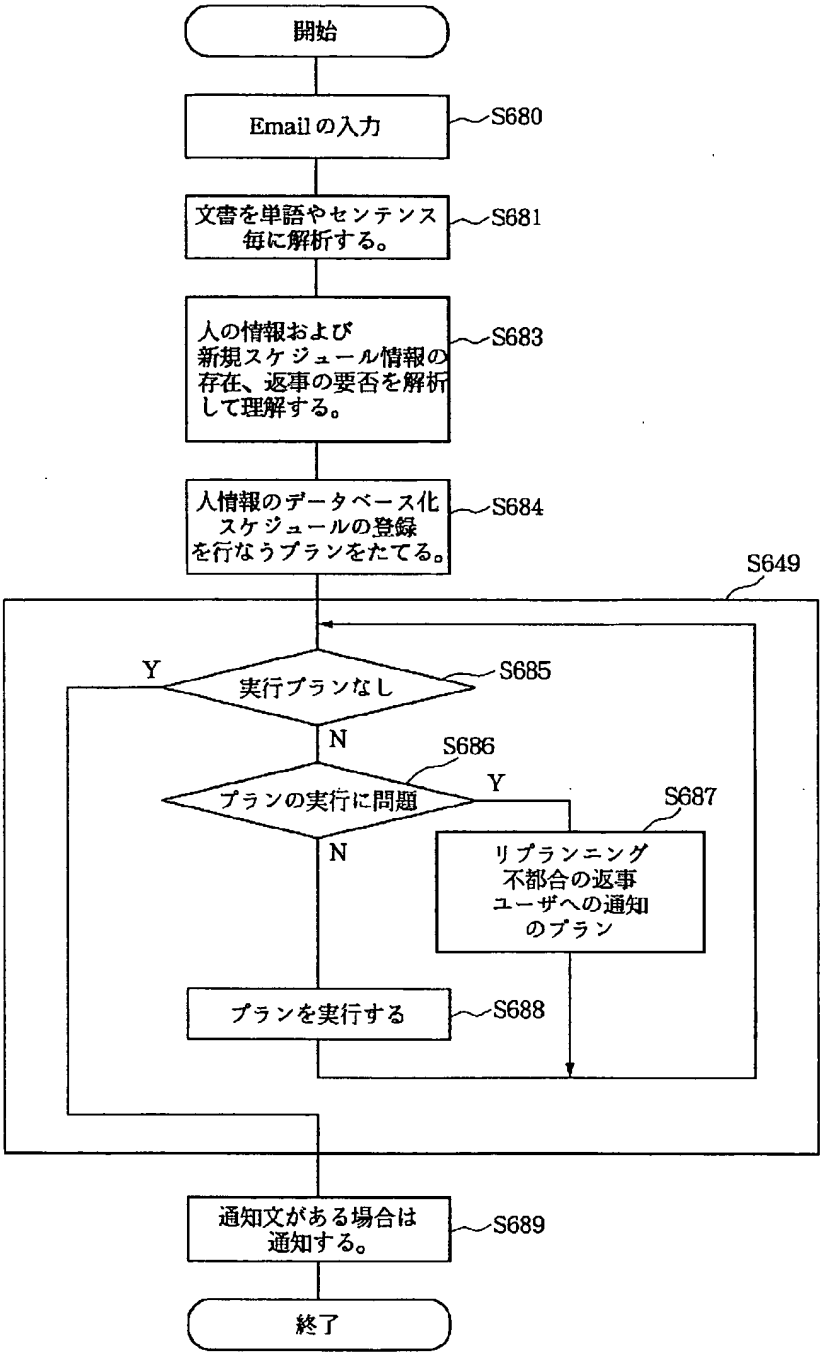
[Drawing 127]

JOBの種類	条件	事前通知の有無
情報受信		無
情報発信	勤務時間内	有
ステータス正常		無
ステータス異常		有
その他		有

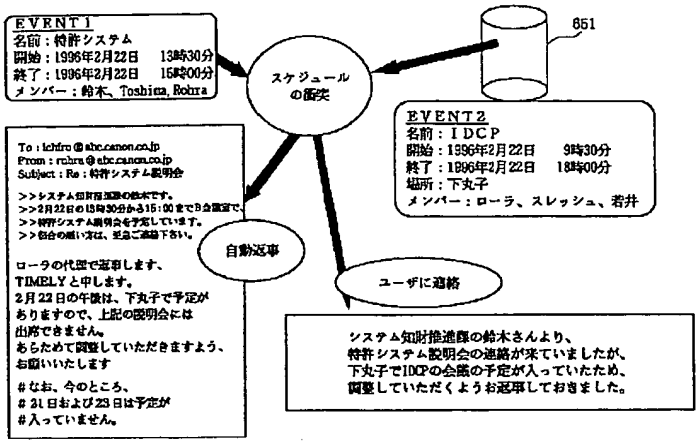
[Drawing 64]



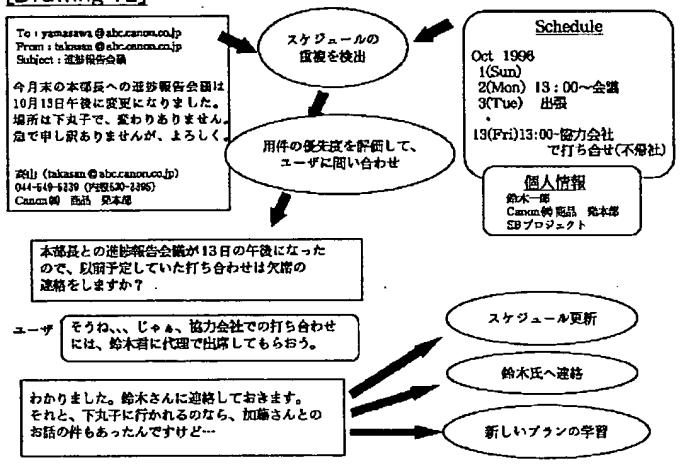
[Drawing 68]


開始
Emailの入力
S680
文書を単語やセンテンス毎に解析する。
S681
人の情報および新規スケジュール情報の存在、返事の要否を解析して理解する。
S683
人情報のデータベース化スケジュールの登録を行なうプランをたてる。
S684
S649
Y
実行プランなし
S685
N
S686
プランの実行に問題
Y
S687
N
リプランニング不都合の返事ユーザへの通知のプラン
プランを実行する
S688
通知文がある場合は通知する。
S689
終了

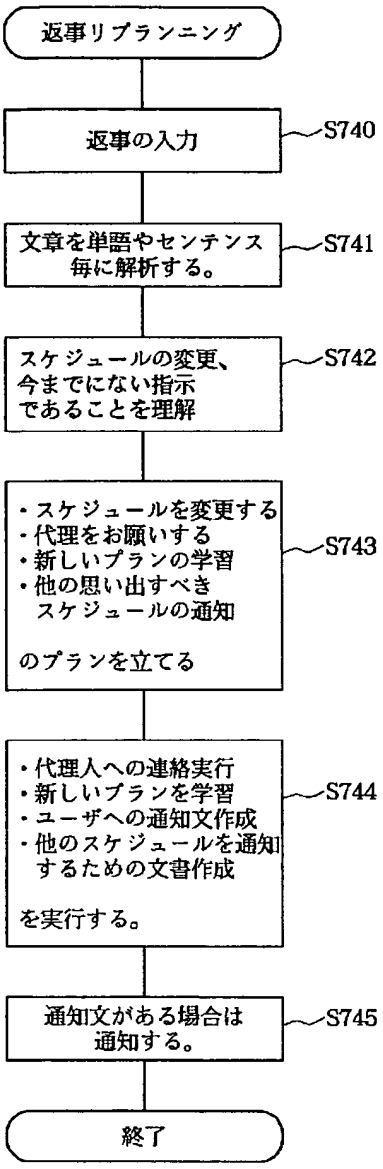
[Drawing 69]



[Drawing 72]



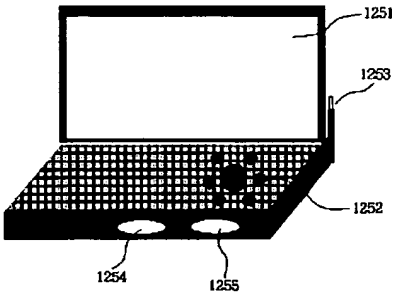
[Drawing 74]



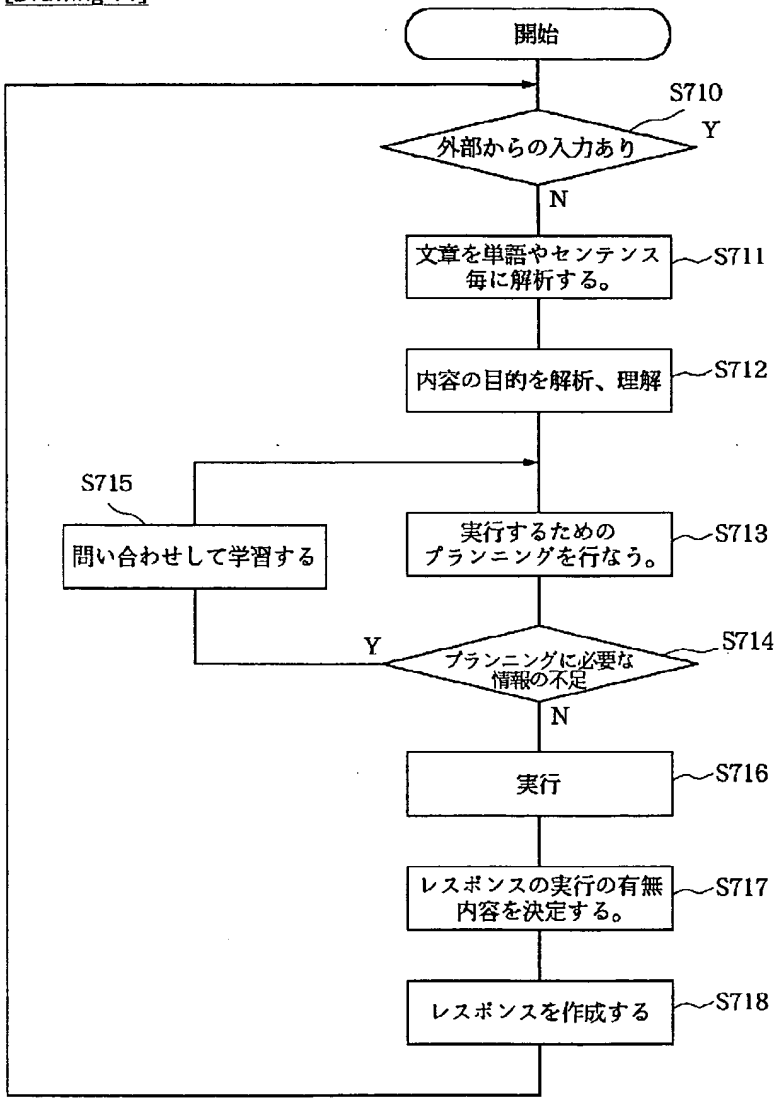
[Drawing 88]

文字列	概念	Role	condition
To :	会社名or氏名	受信会社名or氏名	
From :	会社名or氏名	送信会社名or氏名	
Attn :	氏名	受信者氏名	
Receiver :	氏名	受信氏名	
Sender :	氏名	送信者氏名	
Date :	日付	送信日付	文書頭
Tel :	電話番号	送信者電話番号	送信者column
Tel :	電話番号	送信者電話番号	受信者column
Fax :	Fax番号	送信者Fax番号	送信者column
Fax :	Fax番号	受信者Fax番号…	受信者column
…	…		

[Drawing 125]



[Drawing 71]



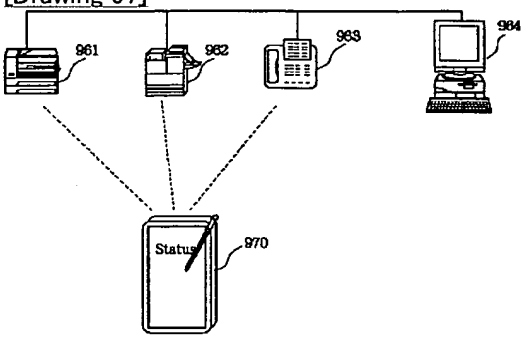
[Drawing 93]

システム： 28日に、Johnさんを迎えに行かなければならないのですが、どうしますか？

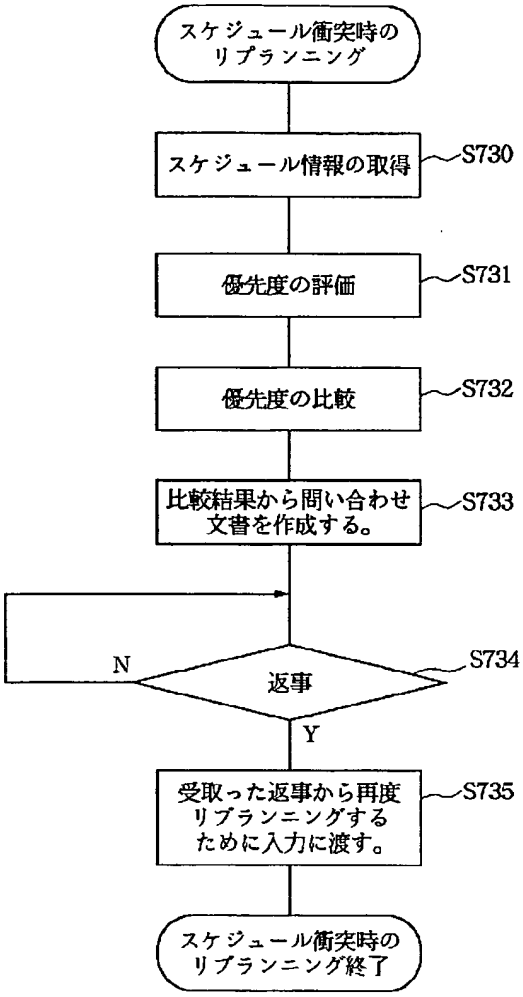
User： それ、ちょっと田中さんに頼んでね！

システム： はい！分かりました。

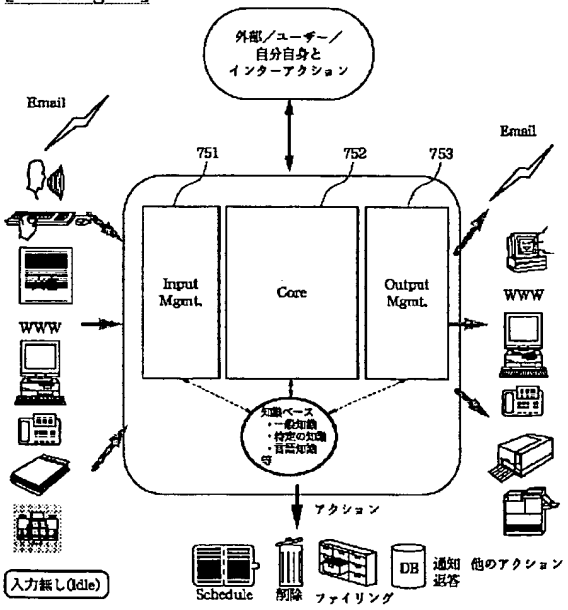
[Drawing 97]



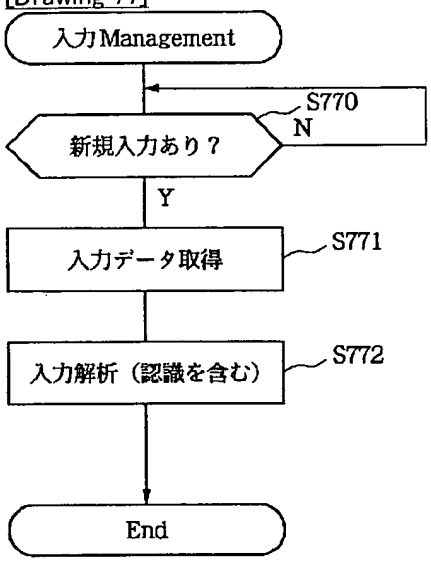
[Drawing 73]


スケジュール衝突時の
リプランニング
スケジュール情報の取得
S730
優先度の評価
S731
優先度の比較
S732
比較結果から問い合わせ
文書を作成する。
S733
N
返事
S734
Y
受取った返事から再度
リプランニングする
ために入力に渡す。
S735
スケジュール衝突時の
リプランニング終了

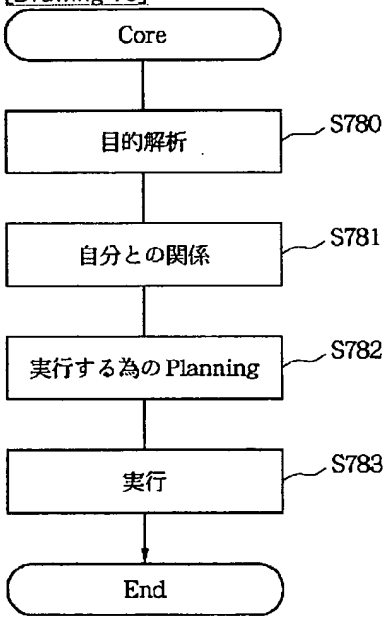
[Drawing 75]


外部／ユーザー／
自分自身と
インターアクション
Email
Email
751
752
753
Input
Mgmt.
Core
Output
Mgmt.
WWW
WWW
知識ベース
・一般知識
・特定の知識
・言語知識
等
アクション
入力無し(Idle)
Schedule
削除
ファイリング
DB
通知
返答
他のアクション

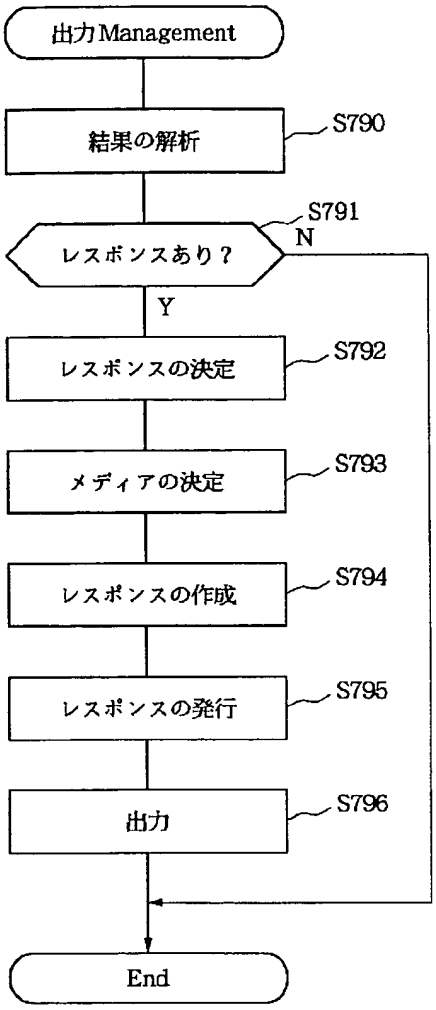
[Drawing 77]



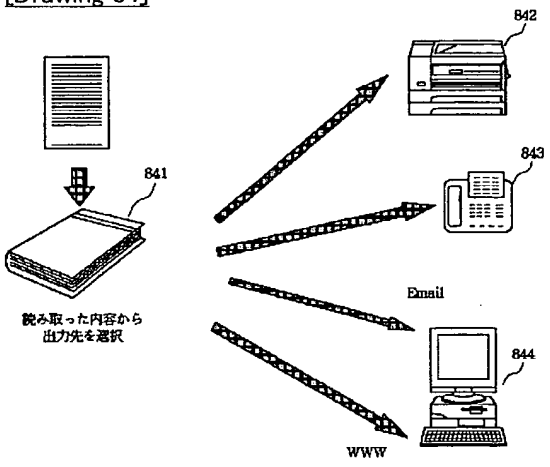
[Drawing 78]



[Drawing 79]



[Drawing 84]



[Drawing 94]

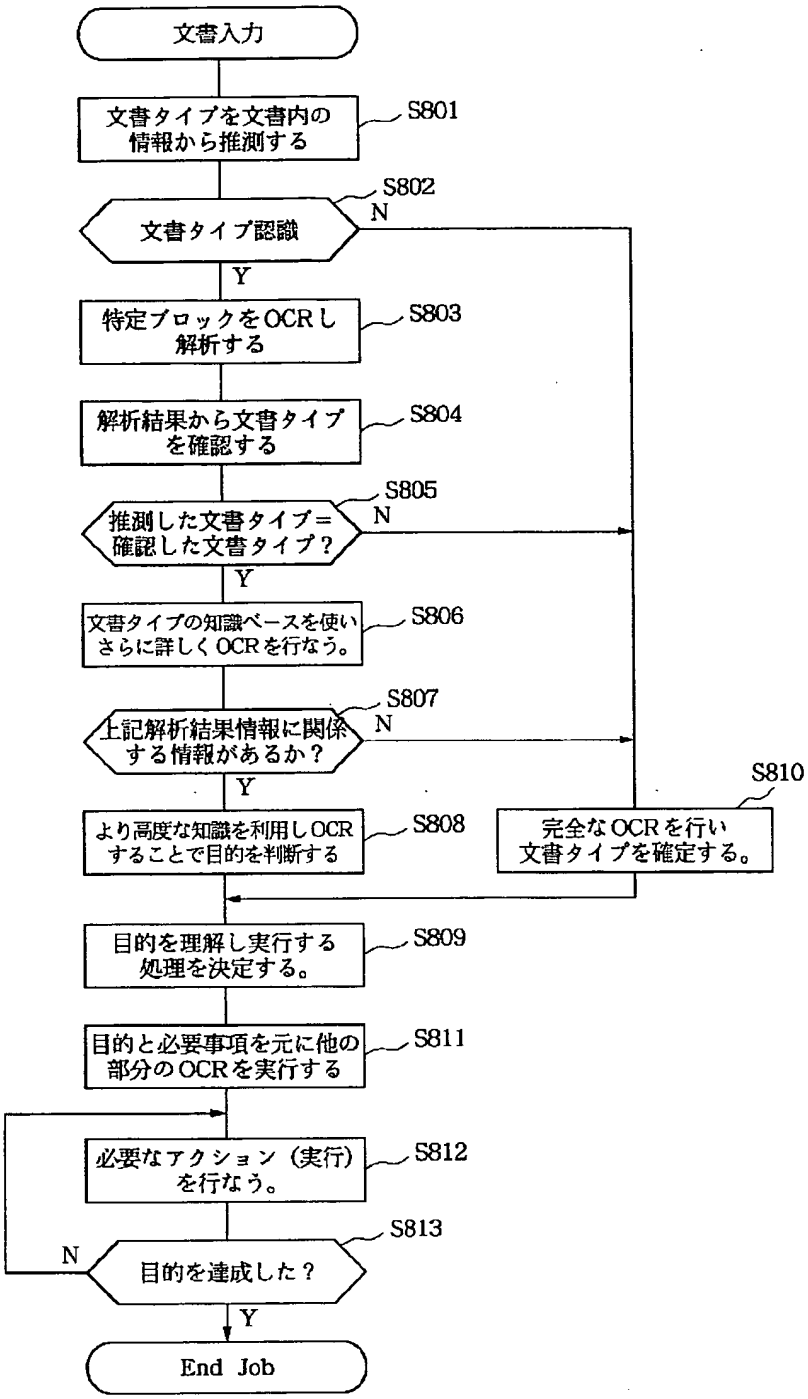
Subject : John's visit
Date : Fri, 23 Nov 1996 17 : 57 : 22 + 0900
From : IDCP < IDCP @ abc.canon.co.jp >
Reply − To : IDCP < IDCP @ abc.canon.co.jp >
Organization : Canin Inc.
To : tanaka @ dos.canon.co.jp
References :

John さんが横浜に 28 日に到着します。お迎えなどのめんどう見て頂けないでしょうかとローラからのお願いです。

John さんからの Fax. 参考まで添付しております。
宜しくお願い足します。

− your favourite friend ! ; −)

[Drawing 80]


文書入力
文書タイプを文書内の情報から推測する
S801
文書タイプ認識
S802
N
Y
特定ブロックをOCRし解析する
S803
解析結果から文書タイプを確認する
S804
推測した文書タイプ＝確認した文書タイプ？
S805
N
Y
文書タイプの知識ベースを使いさらに詳しくOCRを行なう。
S806
上記解析結果情報に関係する情報があるか？
S807
N
Y
より高度な知識を利用しOCRすることで目的を判断する
S808
完全なOCRを行い文書タイプを確定する。
S810
目的を理解し実行する処理を決定する。
S809
目的と必要事項を元に他の部分のOCRを実行する
S811
必要なアクション（実行）を行なう。
S812
目的を達成した？
S813
N
Y
End Job

[Drawing 81]

Canon

Date : Nov25,1996

To : Macrohard Corp.
Attn : Mr. John Smith
Tel : 001 - 1 - (415) - 394 - 1111
Fax : 001 - 1 - (415) - 394 - 2312

From : Canon Inc.
Sender : Dr. Rohra
Tel : + 81 - 44 - 549 - 5339
Fax : + 81 - 44 - 549 - 5408

Dear Sir,

Thank you for your phone call this morning.

Please find enclosed here with the information regarding the hotel accommodation and other travel information for your forth coming trip to Japan. I will be coming to Yokohama city air terminal to pick you up, hence kindly call me at my residence after you board the limousine bus.

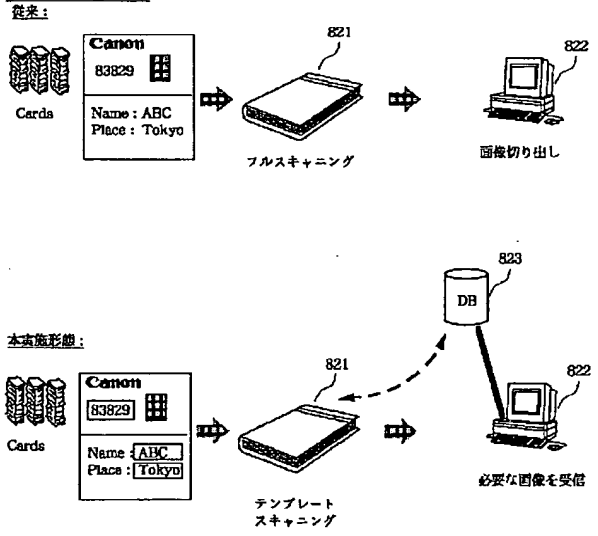
Hotel accommodation for your trip is as follows :
Hotel : Shin - Yokohama Prince Hotel
Period of stay : 18th Dec 1996 - 22nd Dec 1996 (4Nights)

Have a pleasant journey.

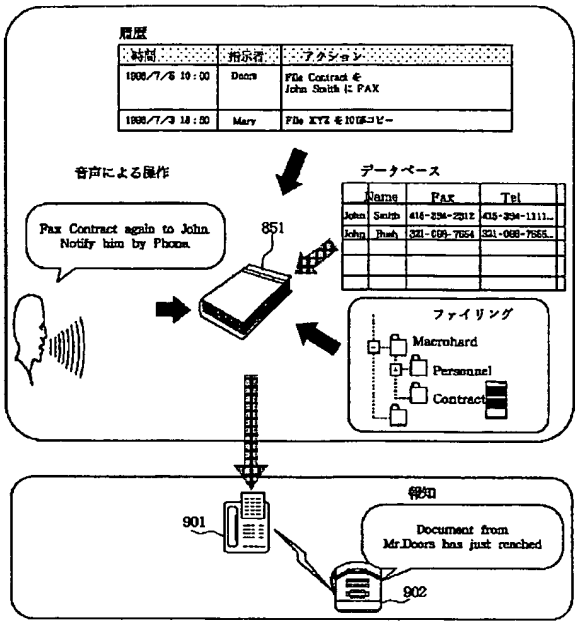
with regards,

(Aruna Rohra)

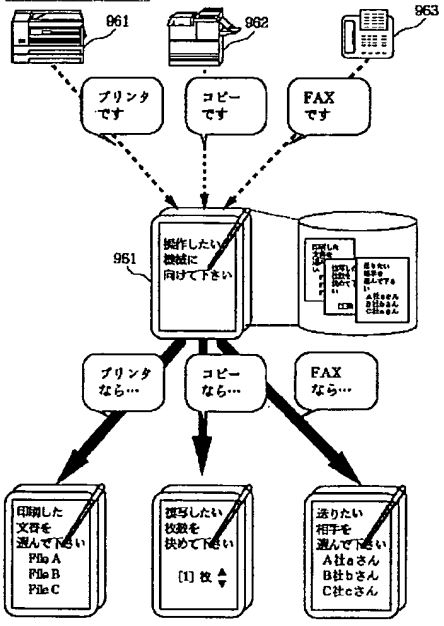
[Drawing 82]



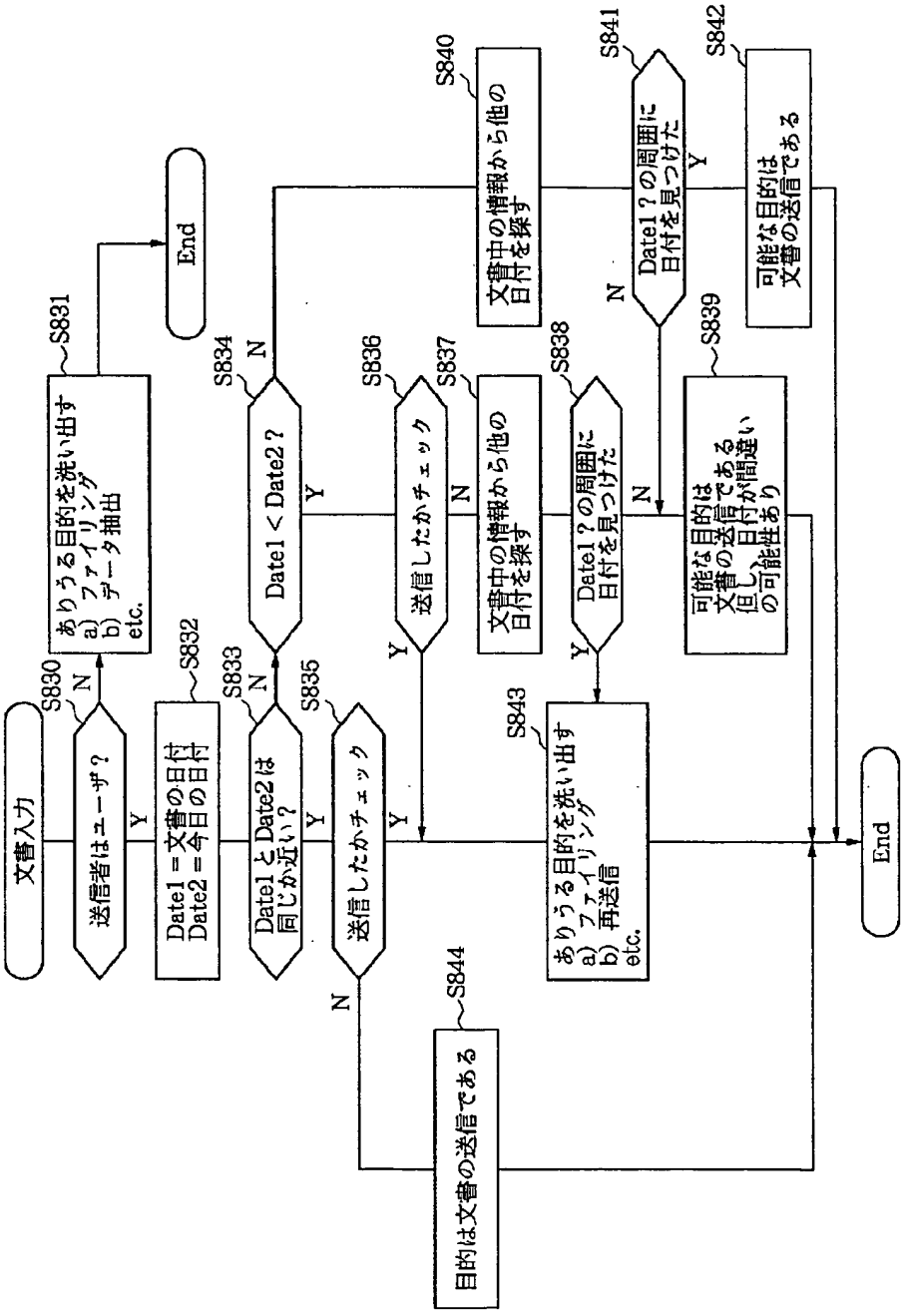
[Drawing 90]



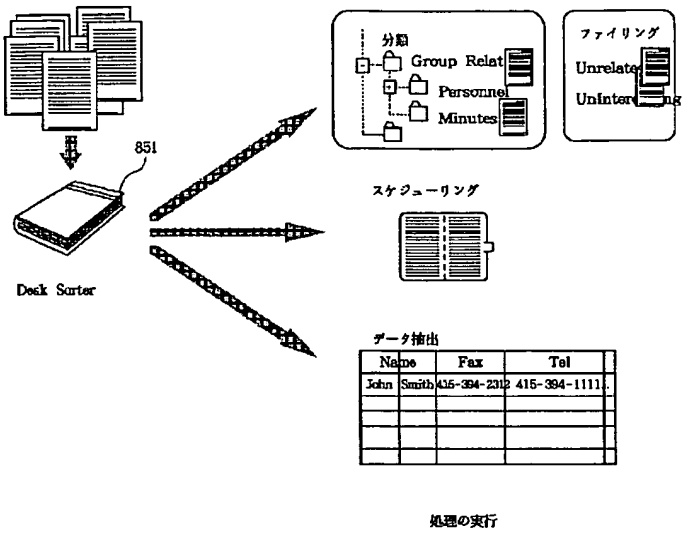
[Drawing 98]



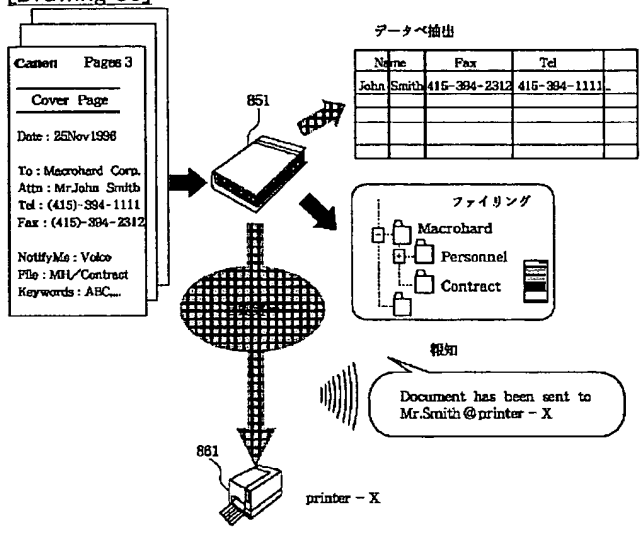
[Drawing 83]


文書入力
S830
送信者はユーザ？
N
Y
S831
ありうる目的を洗い出す
a) ファイリング
b) データ抽出
etc.
S832
Date1＝文書の日付
Date2＝今日の日付
S833
Date1とDate2は同じか近い？
N
Y
S834
Date1 < Date2？
N
Y
S835
送信したかチェック
N
Y
S836
送信したかチェック
Y
S837
文書中の情報から他の日付を探す
N
S838
Date1？の周囲に日付を見つけた
Y
N
S839
可能な目的は
文書の送信である
但し、日付が間違いの可能性あり
S840
文書中の情報から他の日付を探す
S841
Date1？の周囲に日付を見つけた
N
Y
S842
可能な目的は
文書の送信である
S843
ありうる目的を洗い出す
a) ファイリング
b) 再送信
etc.
S844
目的は文書の送信である
End
End

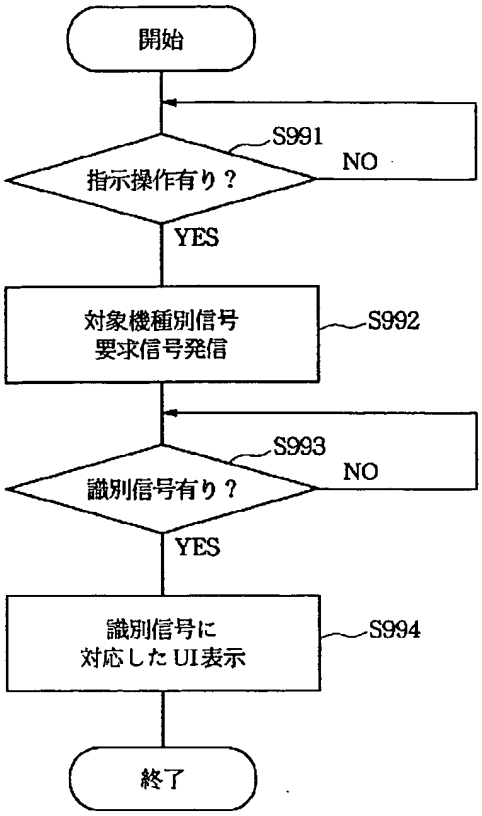
[Drawing 85]



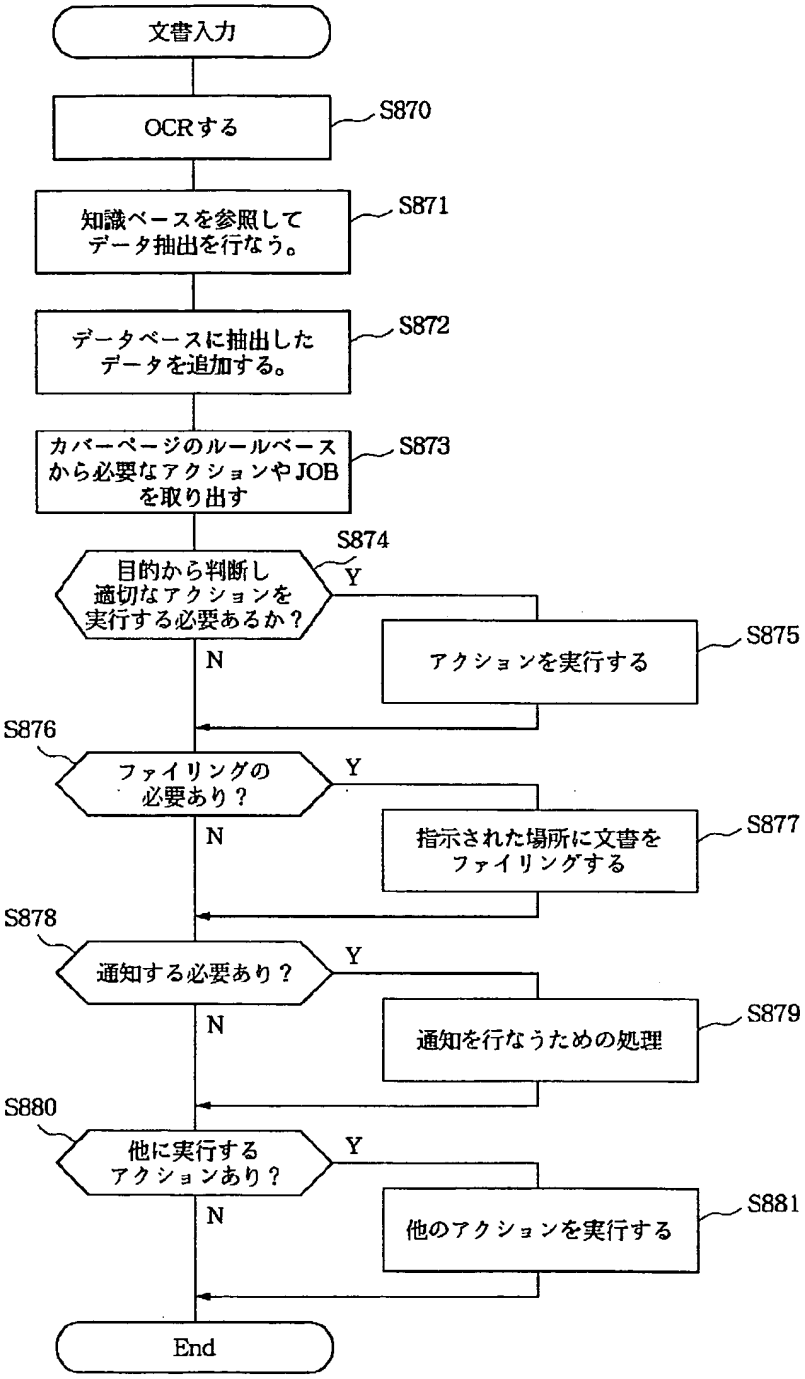
[Drawing 86]



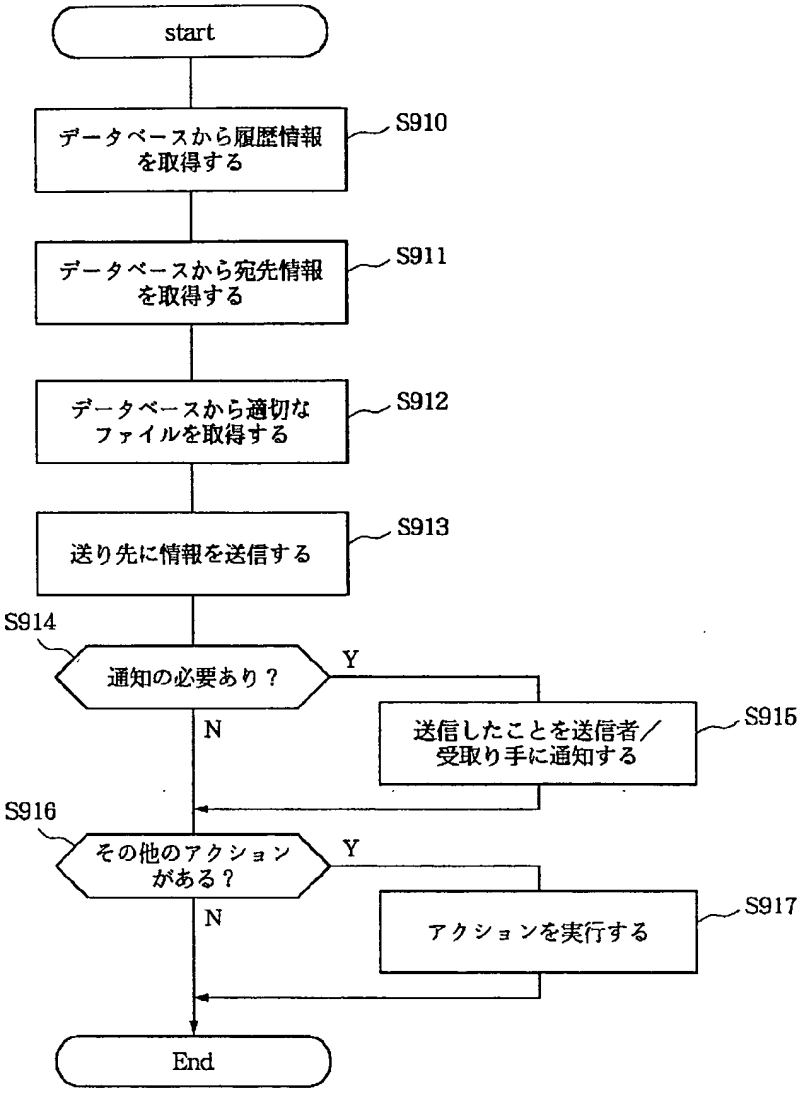
[Drawing 99]


開始
S991
指示操作有り？
NO
YES
対象機種別信号
要求信号発信
S992
S993
識別信号有り？
NO
YES
識別信号に
対応したUI表示
S994
終了

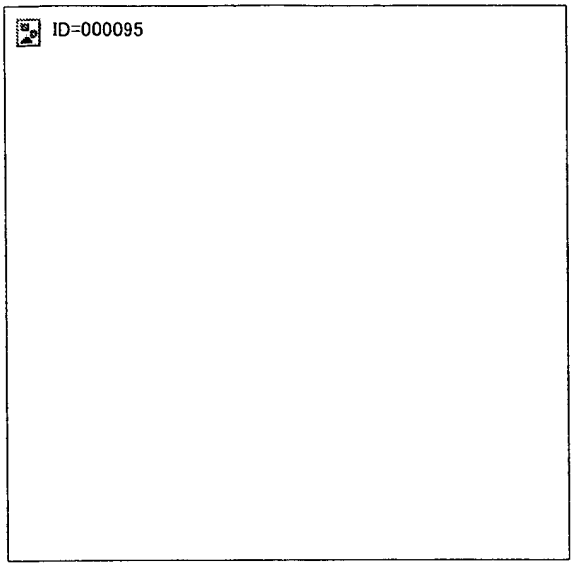
[Drawing 87]


文書入力
OCRする
S870
知識ベースを参照して
データ抽出を行なう。
S871
データベースに抽出した
データを追加する。
S872
カバーページのルールベース
から必要なアクションやJOB
を取り出す
S873
S874
目的から判断し
適切なアクションを
実行する必要あるか？
Y
N
アクションを実行する
S875
S876
ファイリングの
必要あり？
Y
N
指示された場所に文書を
ファイリングする
S877
S878
通知する必要あり？
Y
N
通知を行なうための処理
S879
S880
他に実行する
アクションあり？
Y
N
他のアクションを実行する
S881
End

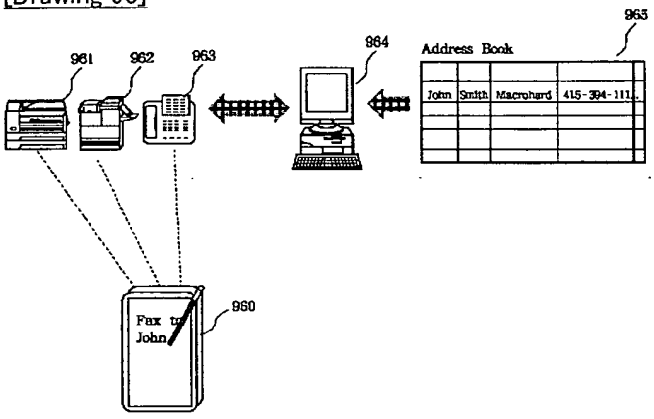
[Drawing 91]


start
データベースから履歴情報を取得する
S910
データベースから宛先情報を取得する
S911
データベースから適切なファイルを取得する
S912
送り先に情報を送信する
S913
S914
通知の必要あり？
Y
N
送信したことを送信者／受取り手に通知する
S915
S916
その他のアクションがある？
Y
N
アクションを実行する
S917
End

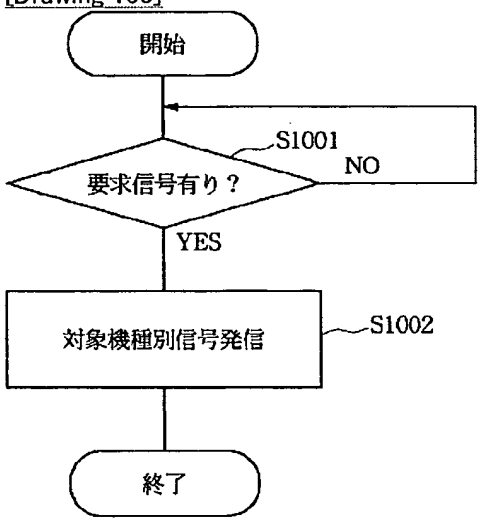
[Drawing 92]



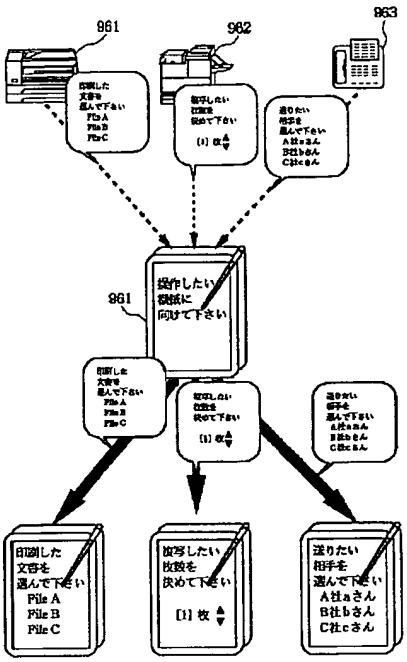
[Drawing 96]



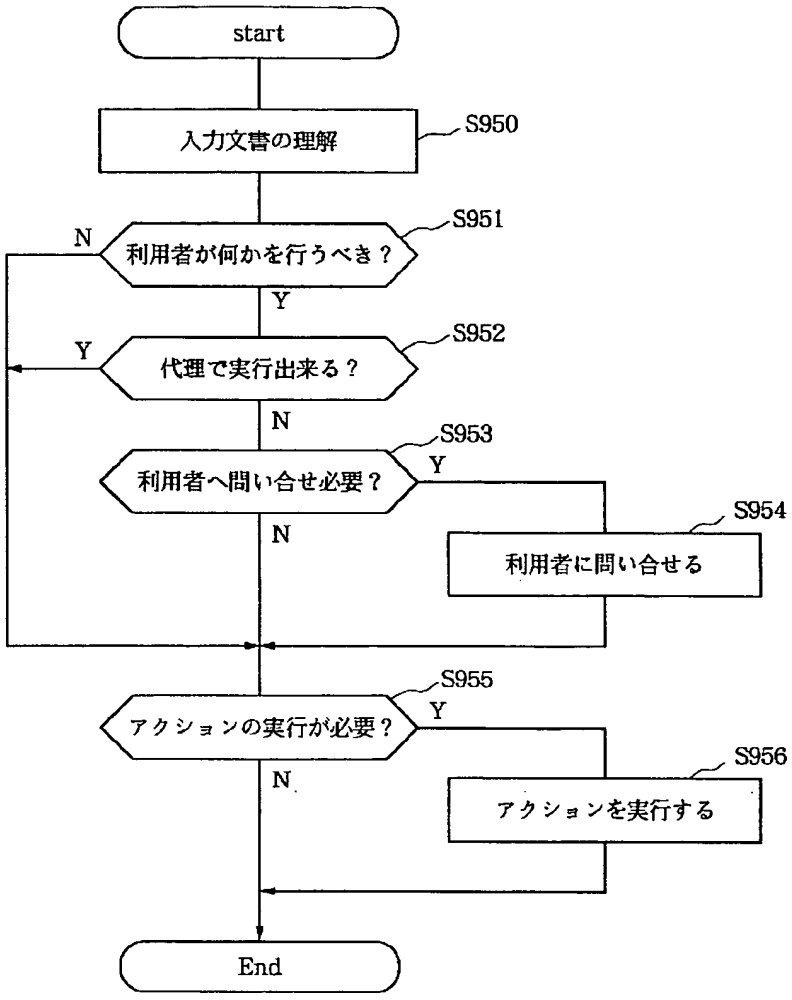
[Drawing 100]



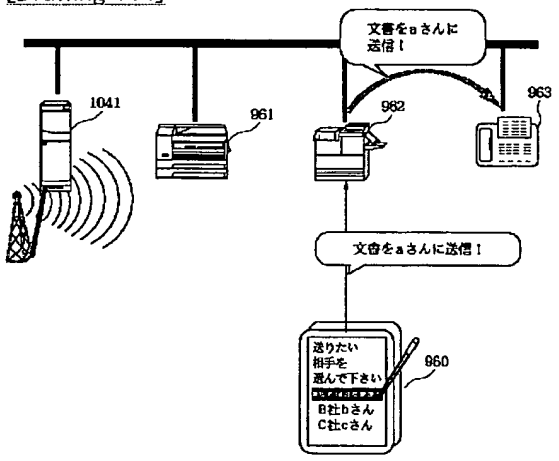
[Drawing 101]


961
962
963
操作したい
機械に
向けて下さい
印刷した
文書を
選んで下さい
File A
File B
File C
放写したい
枚数を
決めて下さい
[1] 枚
送りたい
相手を
選んで下さい
A社aさん
B社bさん
C社cさん

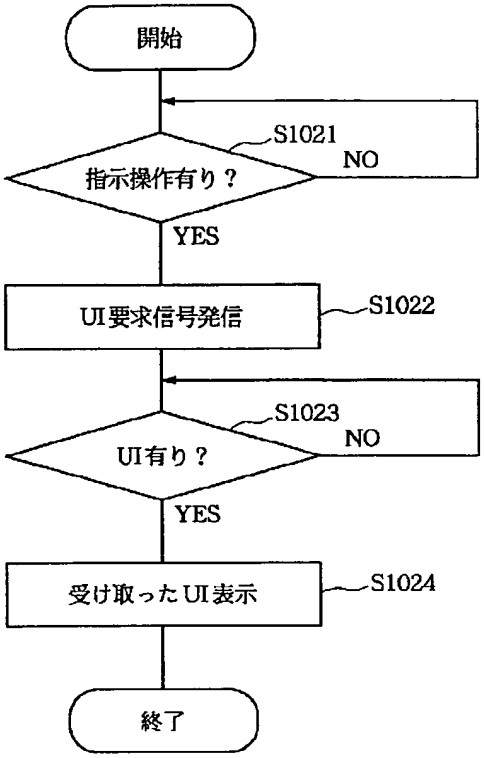
[Drawing 95]



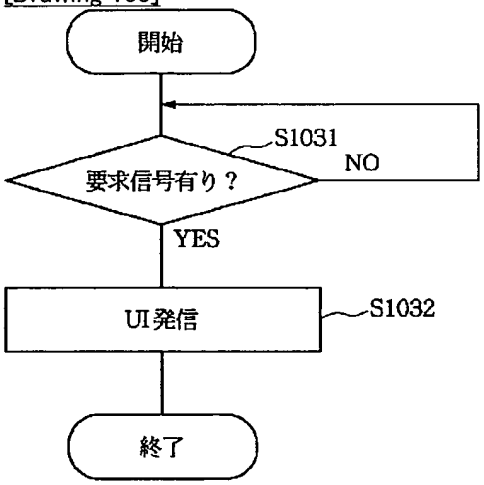
[Drawing 114]



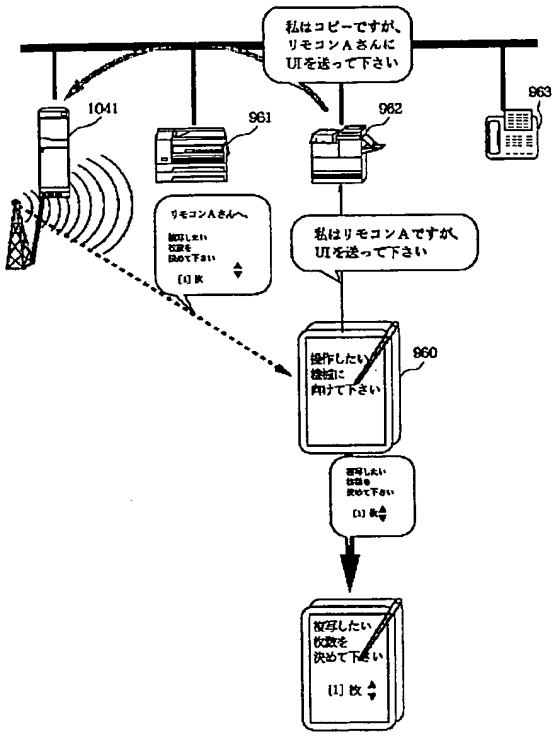
[Drawing 102]



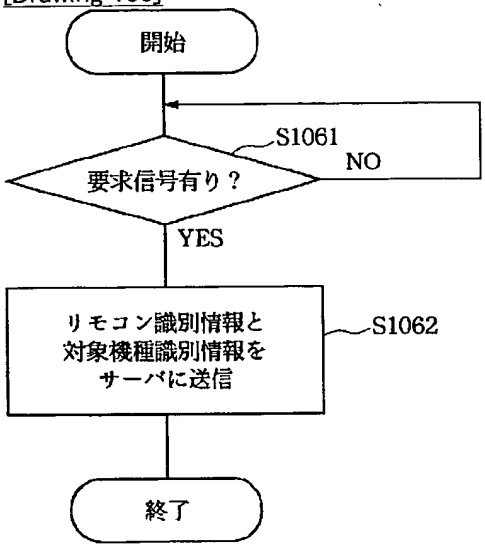
[Drawing 103]



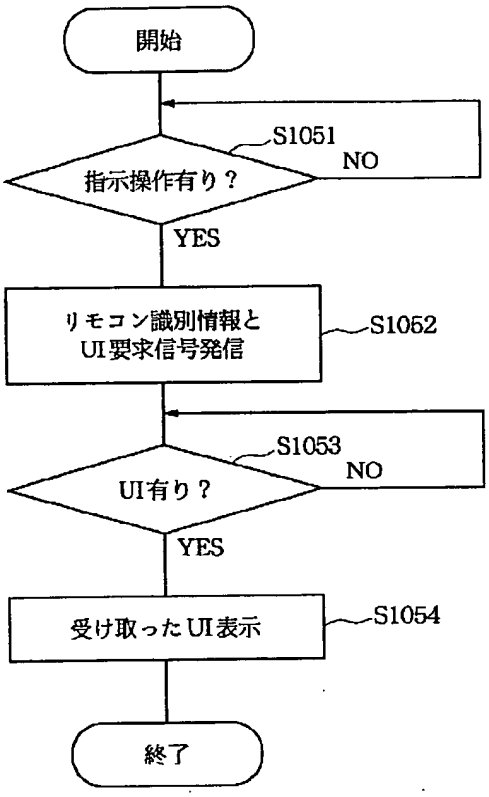
[Drawing 104]



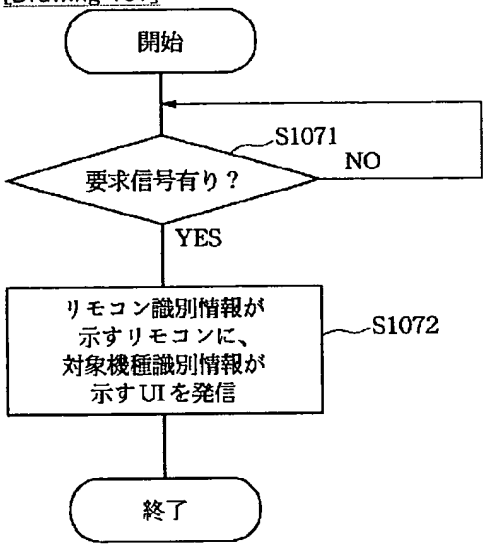
[Drawing 106]



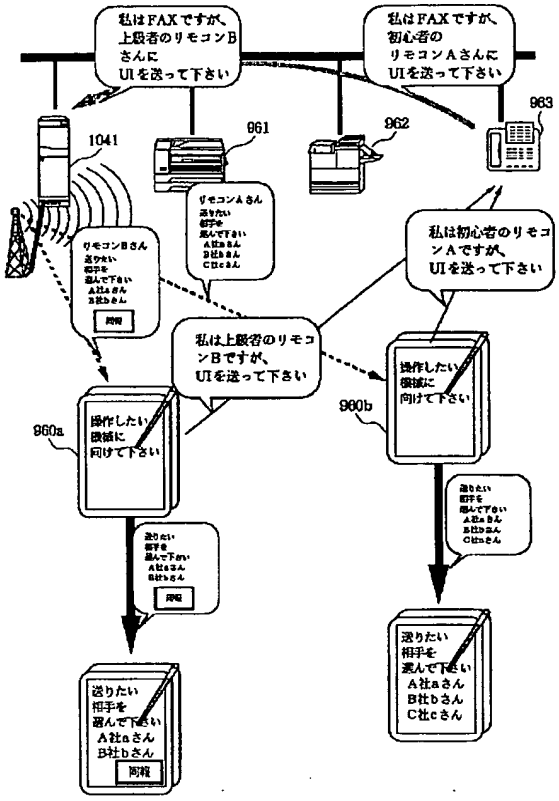
[Drawing 105]



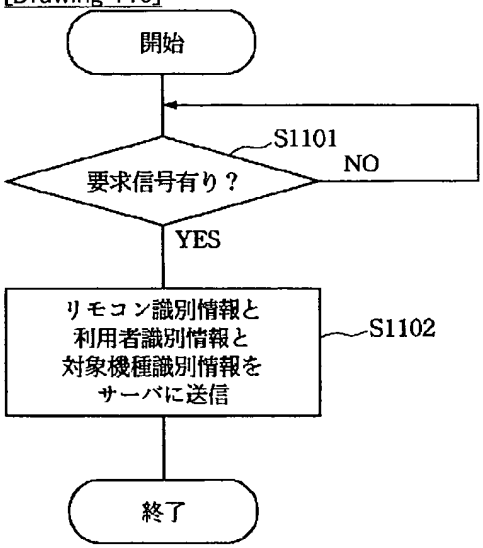
[Drawing 107]



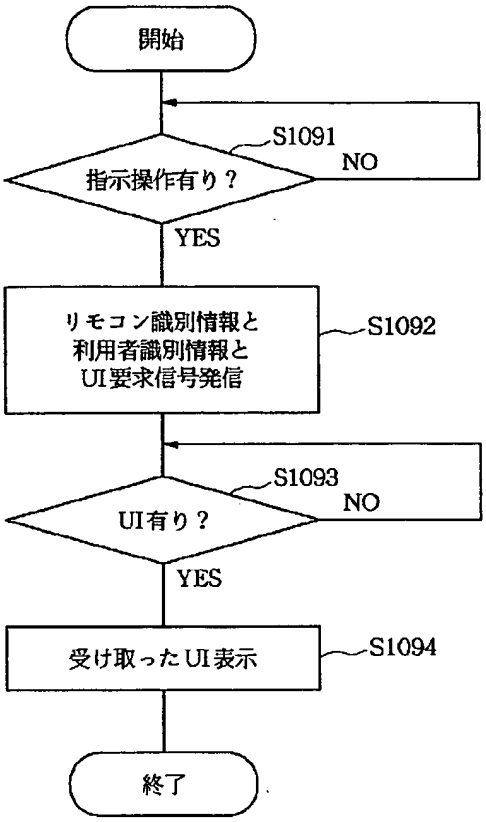
[Drawing 108]



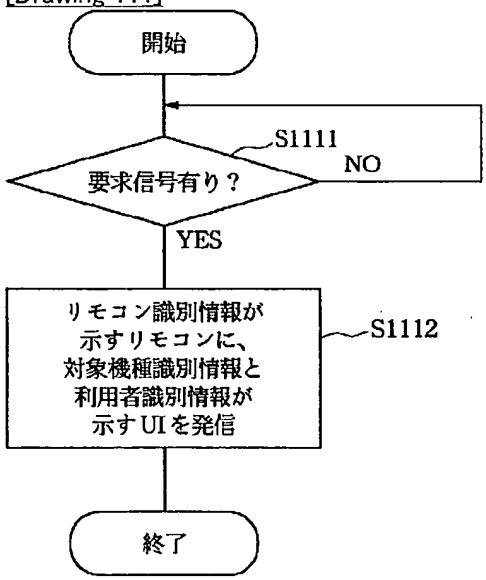
[Drawing 110]



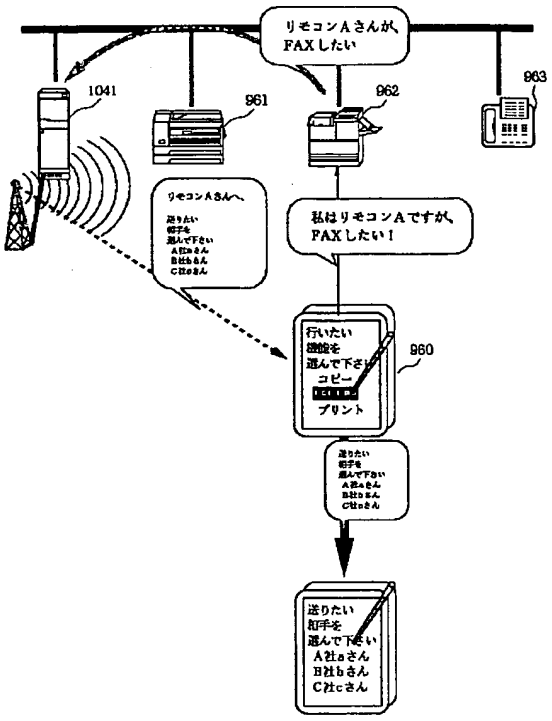
[Drawing 109]



[Drawing 111]



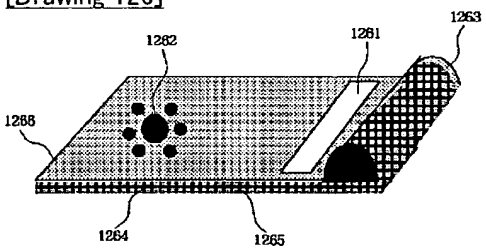
[Drawing 113]



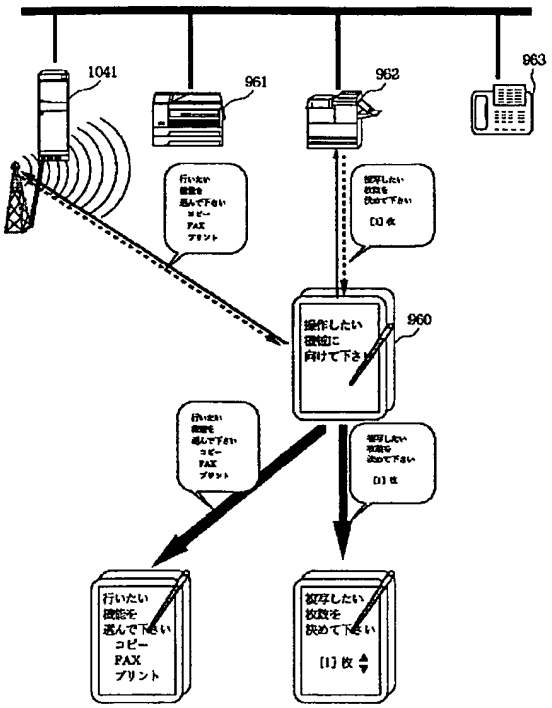
[Drawing 121]

時間	指示者	アクション
1996/7/5 10:00	Tom	File ABCをA社のaさんに送信
1996/7/3 18:50	Mary	File XYZを10部コピー

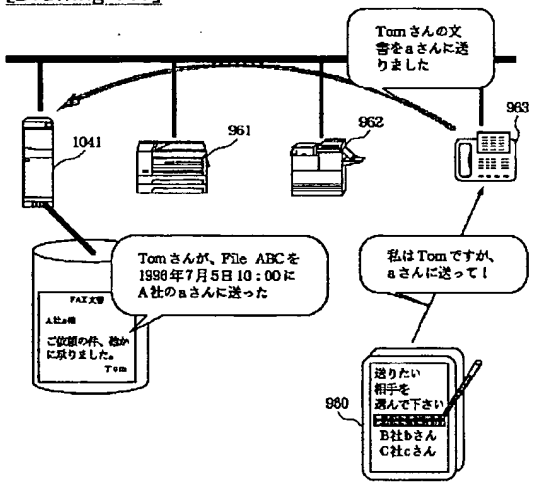
[Drawing 126]



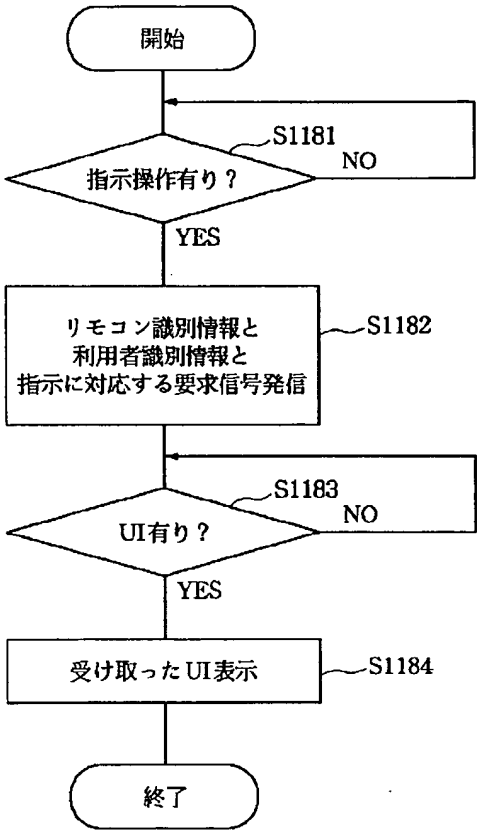
[Drawing 115]



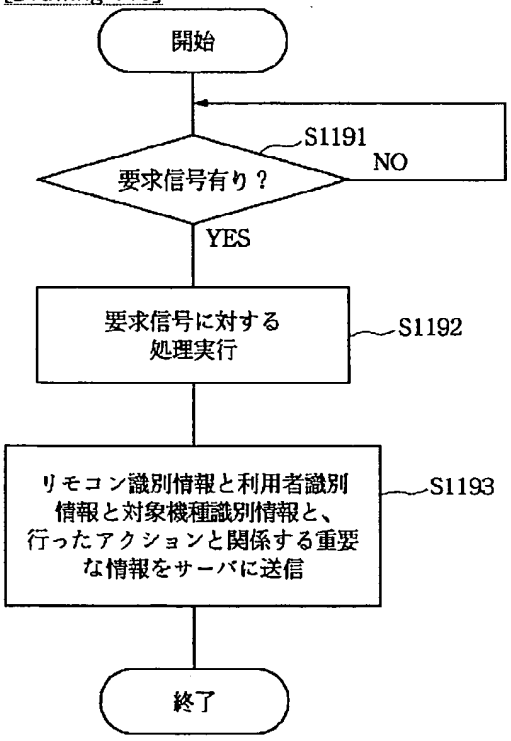
[Drawing 117]



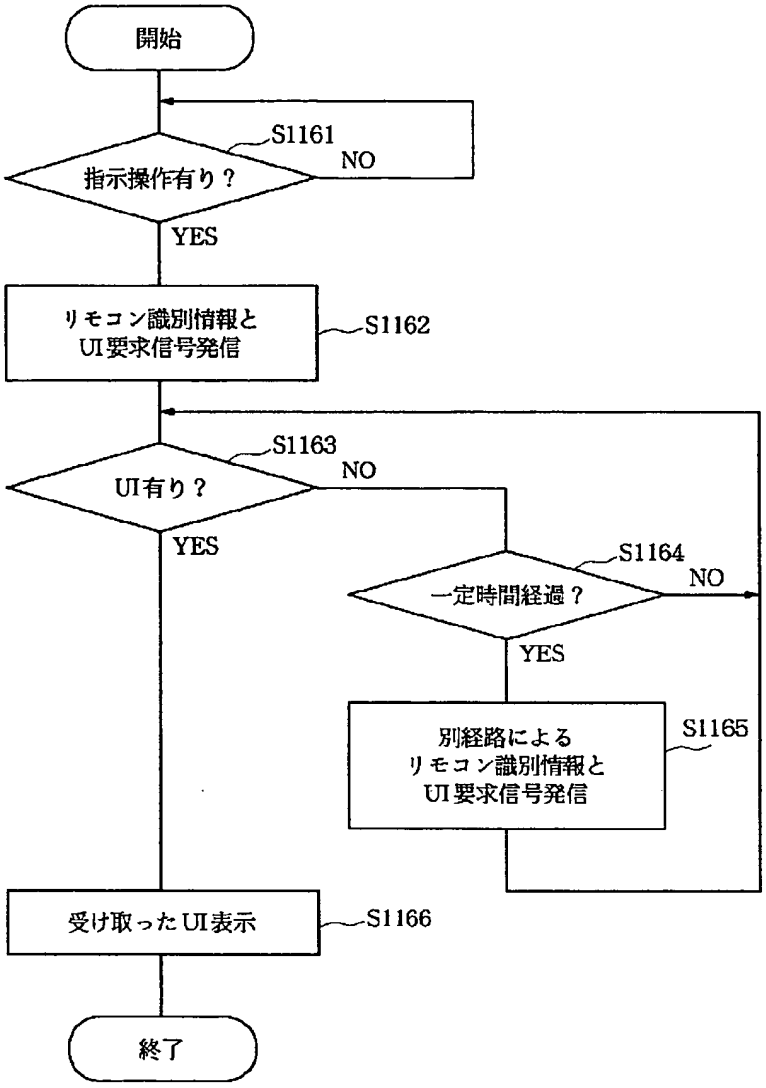
[Drawing 118]



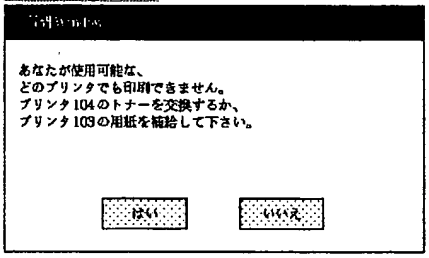
[Drawing 119]



[Drawing 116]



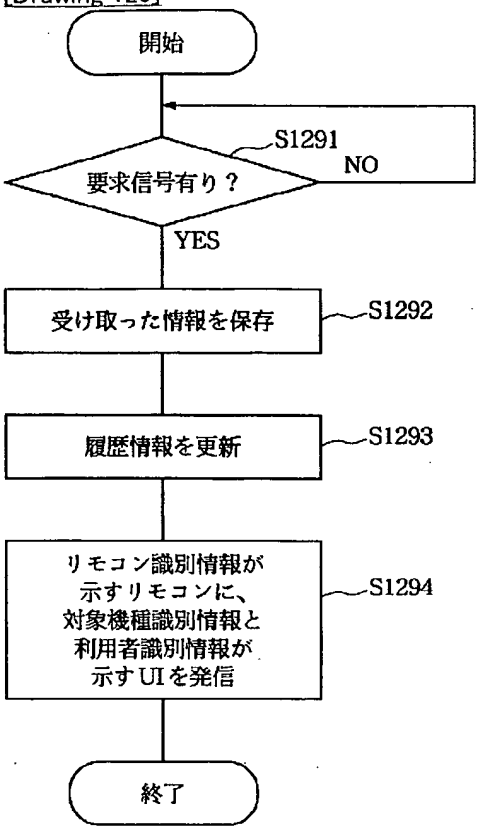
[Drawing 129]



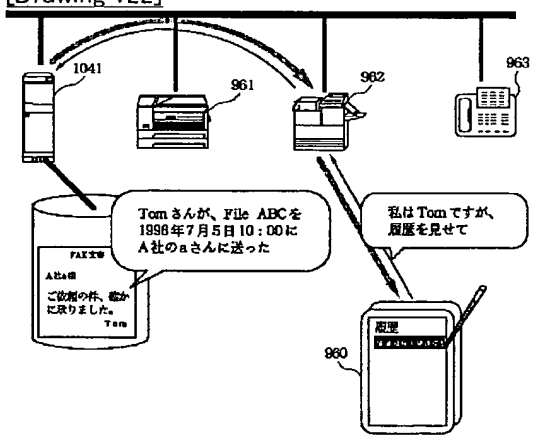
[Drawing 130]

入力	意味	要求項目
印刷	ACTION（印刷）	対象、品質、枚数
送る	AOTION（送信）	対象、送信先
取引先	品質（商品位）	
メンバー	品質（自由）	
枚	枚数	数

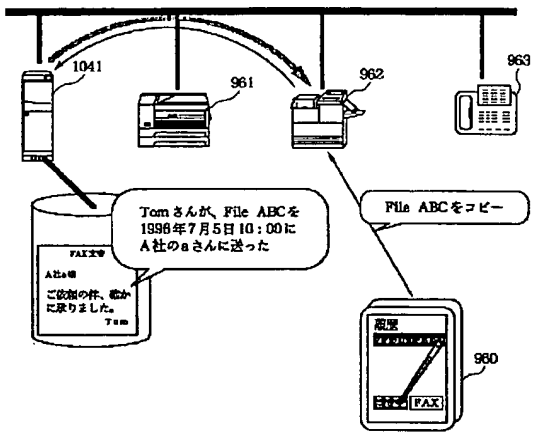
[Drawing 120]



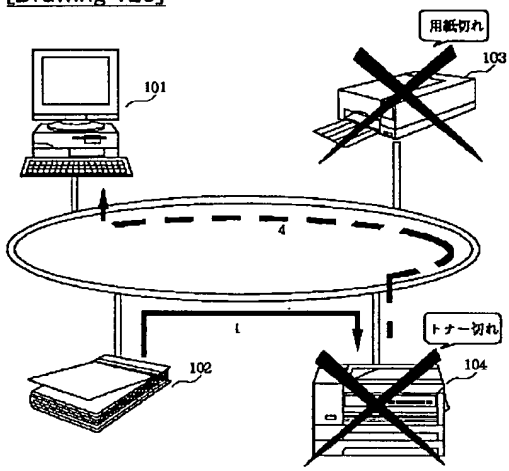
[Drawing 122]



[Drawing 123]



[Drawing 128]



[Translation done.]

* NOTICES *

JPO and NCIPI are not responsible for any
damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CORRECTION OR AMENDMENT

[Kind of official gazette] Printing of amendment by the convention of 2 of Article 17 of Patent Law
[Category partition] The 3rd partition of the 6th category
[Publication date] February 3, Heisei 17 (2005. 2.3)

[Publication No.] JP,10-240552,A
[Date of Publication] September 11, Heisei 10 (1998. 9.11)
[Application number] Japanese Patent Application No. 9-44530
[The 7th edition of International Patent Classification]

G06F 9/46
B41J 29/38
G06F 3/12

[FI]

G06F 9/46 360 C
B41J 29/38 Z
G06F 3/12 A
G06F 3/12 D

[Procedure amendment]
[Filing Date] March 1, Heisei 16 (2004. 3.1)
[Procedure amendment 1]
[Document to be Amended] Description
[Item(s) to be Amended] Claim
[Method of Amendment] Modification
[The content of amendment]
[Claim(s)]
[Claim 1]
A receiving means to receive information,
An analysis means to analyze the received information,
A decision means to opt for the processing which should be performed based on the analysis result of this analysis means,
An activation means to perform said processing for which it opted,
A recognition means to recognize a situation,
A decision means to judge whether said processing should be performed with said activation means based on said analysis result and said situation,
The information processor characterized by having a termination means to stop activation of said processing by said activation means when [which should be performed with this decision means] it is judged that it does not come out.
[Claim 2]

The information processor according to claim 1 characterized by having a directions means to direct activation of said processing to other equipments.
[Claim 3]
The information processor according to claim 2 characterized by having an advice means to notify a user of having directed activation of said processing to equipment besides the above.
[Claim 4]
Said situation is an information processor according to claim 1 characterized by including the own situation of equipment.
[Claim 5]
Said situation is an information processor according to claim 1 characterized by including the situation of other equipments.
[Claim 6]
Said situation is an information processor according to claim 1 characterized by including a user's situation.
[Claim 7]
Said termination means is an information processor according to claim 1 characterized by stopping activation of the processing concerned when the processing for which it opted with said decision means is the processing unnecessary for a user recognized by said recognition means.
[Claim 8]
Said termination means is an information processor according to claim 1 characterized by stopping activation of the processing concerned when the processing for which it opted with said decision means is the processing which is not permitted for the user recognized by said recognition means.
[Claim 9]
Said termination means is an information processor according to claim 1 with which processing for which it opted with said decision means is characterized by stopping activation of the processing concerned when the user recognized by said recognition means is processing for a different user.
[Claim 10]
said decision means should perform said processing with other equipments rather than said activation means — ** — when it judges, it should perform with said activation means — not coming out — judging — said directions means — activation of said processing — said — others — the information processor according to claim 2 characterized by what is directed to equipment.
[Claim 11]
The information processor according to claim 1 characterized by having an advice decision means to judge whether a user is notified of activation of the processing concerned in advance of activation of said processing, based on said analysis result.
[Claim 12]
the case where activation of said processing is directed to other equipments — being concerned — others — the information processor according to claim 2 which will be characterized by rerunning decision by said decision means if directions are refused from equipment.
[Claim 13]
It is the information processor according to claim 2 characterized by to direct activation of said processing to other equipments when it is judged that it is appropriate to have an equipment decision means to judge whether it is appropriate to recognize the situation of equipment itself and other equipments with said recognition means, and to perform with which equipment from the recognized situation, and to perform with other equipments.
[Claim 14]
The information processor according to claim 13 characterized by having a proposal means to form an alternative and to propose to a user when activation by which equipment is also judged not to be suitable by said equipment decision means.
[Claim 15]
The receiving process which receives information.

The analysis process which analyzes the received information,
The decision process which opts for the processing which should be performed based on the analysis result of this analysis process,
The activation process which performs said processing for which it opted,
The recognition process which recognizes a situation,
The decision process which judges whether said processing should be performed according to said activation process based on said analysis result and said situation,
The information processing approach characterized by having the termination process which stops activation of said processing by said activation process when [which should be performed according to this decision process] it is judged that it does not come out.
[Claim 16]
The information processing approach according to claim 15 characterized by having the directions process which directs activation of said processing to other equipments.
[Claim 17]
The information processing approach according to claim 16 characterized by having the advice process which notifies a user of having directed activation of said processing to equipment besides the above.
[Claim 18]
Said situation is the information processing approach according to claim 15 characterized by including the own situation of equipment.
[Claim 19]
Said situation is the information processing approach according to claim 15 characterized by including the situation of other equipments.
[Claim 20]
Said situation is the information processing approach according to claim 15 characterized by including a user's situation.
[Claim 21]
The information processing approach according to claim 15 characterized by stopping activation of the processing concerned by said termination process when the processing for which it opted according to said decision process is the processing unnecessary for a user recognized according to said recognition process.
[Claim 22]
The information processing approach according to claim 15 characterized by stopping activation of the processing concerned by said termination process when the processing for which it opted according to said decision process is the processing which is not permitted for the user recognized according to said recognition process.
[Claim 23]
The information processing approach according to claim 15 characterized by the processing for which it opted according to said decision process stopping activation of the processing concerned by said termination process when the user recognized according to said recognition process is processing for a different user.
[Claim 24]
in said decision process, said processing should be performed with other equipments rather than said activation process — ** — the information processing approach according to claim 15 which judges that it does not come out and is characterized by the thing which should perform according to said activation process, and for which activation of said processing is directed to other equipments at said directions process when it judges.
[Claim 25]
The information processing approach according to claim 15 characterized by the advice decision process of judging whether a user being notified of activation of the processing concerned in advance of activation of said processing based on said analysis result.
[Claim 26]
the case where activation of said processing is directed to other equipments — being concerned — others — the information processing approach according to claim 16 which will be

characterized by rerunning decision by said decision means if directions are refused from equipment.

[Claim 27]

It is the information-processing approach according to claim 24 characterized by to direct activation of said processing to other equipments when it is judged that it is appropriate to have the equipment decision process of judging whether it being appropriate recognizing the situation of equipment itself and other equipments according to said recognition process, and performing with which equipment from the recognized situation, and to perform with other equipments.

[Claim 28]

The information processing approach according to claim 27 characterized by having the proposal process which forms an alternative and is proposed to a user when activation by which equipment is also judged not to be suitable according to said equipment decision process.

[Translation done.]

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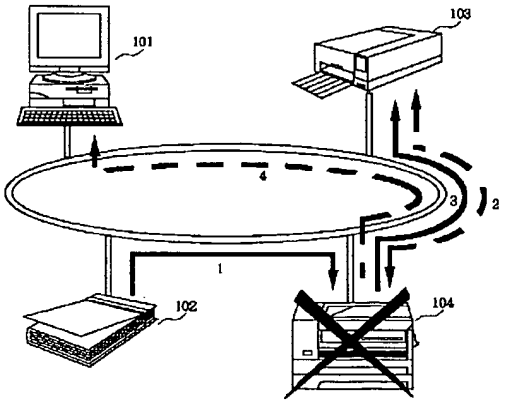
(54)【発明の名称】　情報処理装置及びその方法

(57)【要約】

【課題】　ユーザの操作の負担を軽減し、利用可能な最適な装置資源が活用して、不要もしくは不適当な処理を回避する。

【解決手段】　プリンタ104に、スキャナ102からプリントＪＯＢを受信する受信手段と、受信したＪＯＢを解析する解析手段と、該解析手段の解析結果に基づいて、実行すべき処理を決定する決定手段と、決定された前記処理を実行する実行手段と、自装置及び他のプリンタ103の状況を認識する認識手段と、前記解析結果及び前記状況に基づいて、前記処理を自装置により実行すべきか否かを判断する判断手段と、自装置で実行すべきでないと判断された場合に、自装置による前記処理の実行を中止して、プリンタ103にＪＯＢを転送する手段とを備える。



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【特許請求の範囲】

【請求項１】　情報を受信する受信手段と、
受信した情報を解析する解析手段と、
該解析手段の解析結果に基づいて、実行すべき処理を決定する決定手段と、
決定された前記処理を実行する実行手段と、
状況を認識する認識手段と、
前記解析結果及び前記状況に基づいて、前記処理を前記実行手段により実行すべきか否かを判断する判断手段と、
該判断手段により実行すべきでないと判断された場合に、前記実行手段による前記処理の実行を中止する中止手段とを有することを特徴とする情報処理装置。

【請求項２】　前記処理の実行を他の装置に指示する指示手段を有することを特徴とする請求項1に記載の情報処理装置。

【請求項３】　前記処理の実行を前記他の装置に指示したことをユーザに通知する通知手段を有することを特徴とする請求項２に記載の情報処理装置。

【請求項４】　前記状況は、装置自身の状況を含むことを特徴とする請求項1に記載の情報処理装置。

【請求項５】　前記状況は、他の装置の状況を含むことを特徴とする請求項1に記載の情報処理装置。

【請求項６】　前記状況は、ユーザの状況を含むことを特徴とする請求項1に記載の情報処理装置。

【請求項７】　前記決定手段により決定された処理が、前記認識手段により認識されたユーザにとって不要な処理である場合に、当該処理の実行を中止することを特徴とする請求項1に記載の情報処理装置。

【請求項８】　前記決定手段により決定された処理が、前記認識手段により認識されたユーザにとって許可されない処理である場合に、当該処理の実行を中止することを特徴とする請求項1に記載の情報処理装置。

【請求項９】　前記決定手段により決定された処理が、前記認識手段により認識されたユーザとは異なるユーザのための処理である場合に、当該処理の実行を中止することを特徴とする請求項1に記載の情報処理装置。

【請求項１０】　前記判断手段は、前記処理を前記実行手段よりも他の装置で実行すべきと判断した場合に、前記実行手段により実行すべきでないと判断し、前記指示手段は、前記処理の実行を前記他の装置に指示することを特徴とする請求項２に記載の情報処理装置。

【請求項１１】　前記解析結果に基づいて、前記処理の実行に先立って当該処理をユーザに通知するか否かを判断する通知判断手段を有することを特徴とする請求項1に記載の情報処理装置。

【請求項１２】　前記処理の実行を他の装置に指示した場合に、当該他の装置より指示が拒否されると、前記判断手段による判断を再実行することを特徴とする請求項２に記載の情報処理装置。

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【請求項１３】　前記認識手段により装置自身及び他の装置の状況を認識し、認識された状況からどの装置で実行するのが適切かを判断する装置判断手段を具え、他の装置で実行するのが適切と判断された場合に、前記処理の実行を他の装置に指示することを特徴とする請求項２に記載の情報処理装置。

【請求項１４】　前記装置判断手段により、いずれの装置による実行も適切でないと判断された場合に、代案を立ててユーザに提案する提案手段を有することを特徴とする請求項13に記載の情報処理装置。

【請求項１５】　情報を受信する受信工程と、
受信した情報を解析する解析工程と、
該解析工程の解析結果に基づいて、実行すべき処理を決定する決定工程と、
決定された前記処理を実行する実行工程と、
状況を認識する認識工程と、
前記解析結果及び前記状況に基づいて、前記処理を前記実行工程により実行すべきか否かを判断する判断工程と、
該判断工程により実行すべきでないと判断された場合に、前記実行工程による前記処理の実行を中止する中止工程とを有することを特徴とする情報処理方法。

【請求項１６】　前記処理の実行を他の装置に指示する指示工程を有することを特徴とする請求項15に記載の情報処理方法。

【請求項１７】　前記処理の実行を前記他の装置に指示したことをユーザに通知する通知工程を有することを特徴とする請求項１６に記載の情報処理方法。

【請求項１８】　前記状況は、装置自身の状況を含むことを特徴とする請求項15に記載の情報処理方法。

【請求項１９】　前記状況は、他の装置の状況を含むことを特徴とする請求項15に記載の情報処理方法。

【請求項２０】　前記状況は、ユーザの状況を含むことを特徴とする請求項15に記載の情報処理方法。

【請求項２１】　前記決定工程により決定された処理が、前記認識工程により認識されたユーザにとって不要な処理である場合に、当該処理の実行を中止することを特徴とする請求項15に記載の情報処理方法。

【請求項２２】　前記決定工程により決定された処理が、前記認識工程により認識されたユーザにとって許可されない処理である場合に、当該処理の実行を中止することを特徴とする請求項15に記載の情報処理方法。

【請求項２３】　前記決定工程により決定された処理が、前記認識工程により認識されたユーザとは異なるユーザのための処理である場合に、当該処理の実行を中止することを特徴とする請求項15に記載の情報処理方法。

【請求項２４】　前記判断工程では、前記処理を前記実行工程よりも他の装置で実行すべきと判断した場合に、前記実行工程により実行すべきでないと判断し、前記指

示工程では、前記処理の実行を他の装置に指示することを特徴とする請求項15に記載の情報処理方法。

【請求項２５】　前記解析結果に基づいて、前記処理の実行に先立って当該処理をユーザに通知するか否かを判断する通知判断工程を特徴とする請求項15に記載の情報処理方法。

【請求項２６】　前記処理の実行を他の装置に指示した場合に、当該他の装置より指示が拒否されると、前記判断手段による判断を再実行することを特徴とする請求項１６に記載の情報処理方法。

【請求項２７】　前記認識工程により装置自身及び他の装置の状況を認識し、認識された状況からどの装置で実行するのが適切かを判断する装置判断工程を具え、他の装置で実行するのが適切と判断された場合に、前記処理の実行を他の装置に指示することを特徴とする請求項２４に記載の情報処理方法。

【請求項２８】　前記装置判断工程により、いずれの装置による実行も適切でないと判断された場合に、代案を立ててユーザに提案する提案工程を有することを特徴とする請求項２７に記載の情報処理方法。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、複数の装置が接続された情報処理システム及びその方法に関するものである。

【０００２】

【従来の技術】複数の装置が利用可能な環境において、種々の処理を実行させるには、ユーザが各処理に適した装置を選択し、選択した装置に、対応する処理の実行を命じるのが一般的である。

【０００３】例えば、コンピュータで作成した情報やスキャナで読んだ情報を、遠方の相手に紙に記録された形で伝達するには、ネットワークなどを介して接続しているその相手のプリンタを指定して、指定したプリンタで印刷を行なうことができる。

【０００４】

【発明が解決しようとする課題】しかしながら、上記従来の技術では、指示されたある装置が故障や機能不足などで指示された処理が全くできない、あるいは完全にはできない場合は、その装置に命じた処理がユーザの目的どおりには達成できないという問題があった。これを解決するには、ユーザが処理結果を確認して、改めて、同じ処理または追加の処理を他の装置に命じる必要があった。

【０００５】また、処理の目的を達成するために、ユーザの指示した装置より適切な装置があっても、ユーザの指示した装置でしか処理できなかった。

【０００６】また、処理によっては、特定のユーザを対象にした処理であって、現在のユーザには不要もしくは不適当である場合もある。

【０００７】本発明の目的は、このような従来の課題を解決し、処理の目的を達成するためのユーザの操作の負担を軽減でき、利用可能な最適な装置資源が活用でき、不要もしくは不適当な処理を回避できる情報処理システム及びその方法を提供することにある。

【０００８】

【課題を解決するための手段】上記課題を解決するために、本発明によれば、情報処理装置に、情報を受信する受信手段と、受信した情報を解析する解析手段と、該解析手段の解析結果に基づいて、実行すべき処理を決定する決定手段と、決定された前記処理を実行する実行手段と、状況を認識する認識手段と、前記解析結果及び前記状況に基づいて、前記処理を前記実行手段により実行すべきか否かを判断する判断手段と、該判断手段により実行すべきでないと判断された場合に、前記実行手段による前記処理の実行を中止する中止手段とを備える。

【０００９】また、本発明の他の態様によれば、情報処理方法に、情報を受信する受信工程と、受信した情報を解析する解析工程と、該解析工程の解析結果に基づいて、実行すべき処理を決定する決定工程と、決定された前記処理を実行する実行工程と、状況を認識する認識工程と、前記解析結果及び前記状況に基づいて、前記処理を前記実行工程により実行すべきか否かを判断する判断工程と、該判断工程により実行すべきでないと判断された場合に、前記実行工程による前記処理の実行を中止する中止工程とを備える。

【００１０】

【発明の実施の形態】

〔実施形態１〕図１は本実施形態のシステム構成図であり、ネットワークに接続された複数の装置をあらわしている。この中で101はパーソナルコンピュータ（ＰＣ）、102はスキャナ、103はカラープリンタ、104はモノクロプリンタを表わしている。

【００１１】本実施形態では、複数の装置が接続されたシステム（図１の場合はネットワークに接続されている）において、ある装置にＪＯＢの実行が指示された場合に、ＪＯＢの内容より、その目的を解析し、自分が実行すべきＪＯＢは何であるかを理解する。理解した結果、実行すべきＪＯＢに必要な情報を取得し、実行する。ＪＯＢを実行する際に、指示された内容よりも効果的な手法や別の装置がある場合には、他の装置に処理を指示したり、その手法をユーザに提案するための通知を行なったりする。

【００１２】また、ＪＯＢの内容によっては、指示そのものを拒否することも行なう。ここで、ＪＯＢの種類には、利用者の入力操作や他の機器からの実行指示や、これらのＪＯＢを解析した結果や、アイドリング時に自分自身で生成する新たなＪＯＢがある。例えば、スキャナから文書を読みとって、別のプリンタで印刷する場合には、下記のようなＪＯＢが発生する。

①ユーザがスキャナにセットした文書について、スキャナへの指示の内容の解析
②スキャナがユーザから受け取った指示（及び文書がセットされたこと）を解析して生成した、文書の読取り・解析処理と、読取った文書を印刷する為のプリンタへの指示処理
③スキャナが指示処理にしたがって生成した、プリンタへの印刷指示
④プリンタがスキャナから受け取った印刷指示を解析して生成した、印刷処理このようなＪＯＢの生成管理方法の詳細については、実施形態１１以降で説明する。

【００１３】以下では、これらの処理を、複数の装置により実行する手順を、図面に基づいて具体的に説明する。

【００１４】図２は、本実施形態の処理を行うための機能構成図である。ＪＯＢ受取り部201は、ユーザまたは他の装置からＪＯＢを受取る。受取られたＪＯＢは、ＪＯＢテーブル202に登録される。ＪＯＢ解析部203は、ＪＯＢテーブル202に登録されているＪＯＢを取り出して解析する。他機器情報取得部204は、接続している他の機器の属性や現在の状態などを取得する。状況判断部207は、他の機器の現在の状態などから状況を判断する。

【００１５】最適プランニング部210は、ＪＯＢの実行に関して最適なプランを立てる。ＪＯＢ実行判断部206では、ＪＯＢを実行するか否か、実行する場合は、自装置で実行するのか、他の機器で実行するのか等を判断する。他の機器で実行する場合は、他機器への指示部205により、他の機器へＪＯＢの実行を指示する。自装置で実行する場合は、ＪＯＢ実行部209で実行する。実行通知部211は、実行結果や他の機器に実行を指示したことなどをユーザに通知する。

【００１６】図３は、本実施形態の処理を実現するための各装置のハードウェア構成図である。

【００１７】Ｉ／Ｏ301は、装置外部との入出力を行なう。ＣＰＵ302は、プログラムを実行するとともに、装置各部を制御する。ＲＯＭ303は、後述する各フローチャートに対応するＣＰＵ302の実行すべきプログラムや固定データなどを記憶する。ＲＡＭ304は、ＪＯＢテーブル202や、他機器情報取得部204で取得した他の機器の属性や現在の状態など、処理の実行中に発生する各種変数や中間データなどを一時的に記憶する。また、ＲＡＭ304に装置外部などからプログラムをロードして記憶させるようにしてもよい。

【００１８】図４は、本実施形態の処理の流れを示したフローチャートである。まず、ステップS109で、ＪＯＢテーブルの内容を初期化する。ステップS110では、利用者からの入力ＪＯＢや、システムが検知可能なデバイスなどからの入力ＪＯＢや、これらのＪＯＢを解析した結果や、アイドリング時に自分自身で生成した新たなＪＯＢがあるかどうかチェックして、ＪＯＢが入力されたかを判定する。入力されれば、ステップS111で、ＪＯＢテーブルに入力されたＪＯＢを追加する。ステップS112でＪＯＢテーブルにＪＯＢがあるかを調べ、あれば、ステップS113で、ＪＯＢを取り出す。ステップS114では、与えられた指示を解析し、その情報からＪＯＢの目的を解析する。ステップS115では、解析した指示から、更に行なうべきＪＯＢを洗い出す。ステップS116では、ステップS115で洗い出したＪＯＢを登録する。

【００１９】ステップS117では、未実行のＪＯＢがあるかを調べ、あれば、ステップS118に進む。ステップS118では、ＪＯＢが実行可能か判断を行い、不可能と判断した場合は、ステップS115に戻り、新たに行わなければならないＪＯＢを洗い出す。ステップS119では、ＪＯＢを実行し、ステップS117に戻る。

【００２０】例えば、スキャナから文書を読みとって、別のプリンタで印刷するように、ユーザが指示を与えた場合には、印刷済みの文書を入手することがユーザの目的だと解析される。また、この場合、スキャナがユーザから受け取った情報を解析して生成した、文書の読取り・解析処理と、読取った文書を印刷する為のプリンタへの指示処理がＪＯＢとして洗い出される。これらの詳細な流れの説明については、具体例に基づいて実施形態１１以降で説明する。

【００２１】図５は、複数のプリンタから、最適なプリンタを選択して印刷を実行する処理の流れを示した図である。

【００２２】図５においては、ホストコンピュータからの命令や、リモコンなどからの指示として、あるいはユーザが音声で発した自然言語の命令や、カバーページから読み取ったバーコードあるいは文章を解析するなどして、ＪＯＢ情報が送信・入力される。

【００２３】送信されてきたＪＯＢ情報を受取ったデバイスは、ＪＯＢを解析し、ＪＯＢに適した処理を実行可能なプリンタを自動的に選択して出力を行い、更に通知指示がある場合には通知先に応じた最適なメディアを選択し通知する。そのために、ユーザの要求に対して、プリンタの構成を参照し、適切なプリンタを選択して印刷を実行させる。その際、状況に応じて、複数のプリンタへ処理を振り分けることも行なう。また、通知指示がある場合には、通知に最適なメディアを選択して、印刷を実行したプリンタ名や印刷の終了などを通知する。ユーザの要求としては、用紙サイズ、印字品質、カラー、時間制限(例えば、5時までに印刷したい）などがある。また、プリンタの構成としては、プリンタの種類と台数、性能、現在の状態（正常動作しているか、印刷待ちのキューがあるか、用紙やトナーが不足していないか）などがある。通知のためのメディアとしては、ユーザの端末で音声により報知したり、電話で伝えたり、ポケベルにメッセージを送ったり、あるいは通知内容を文書として電子メールやＦＡＸで送信したりする。

【００２４】以下では、図４のフローチャートに従って、図５の処理を各装置が処理する状況を説明する。

【００２５】まず、ステップS110で、例えば、ホストコンピュータに対してある文書を緊急で５時までに出力する指示を与えられた場合、ステップS111で、ＪＯＢテーブルにＪＯＢを追加する。ステップS113で、ＪＯＢを取り出し、ステップS114で、与えられた指示を解析し、その情報からＪＯＢの目的を解析する。ステップS115では、解析した指示から以下のＪＯＢが洗い出される。

【００２６】① 出力するべき文書から出力に適したプリンタを選択するための情報（用紙サイズ、印字品質、カラー文書など）と、制限時間などの情報を取得する。
② 接続されたプリンタから①の情報に適したプリンタを選択する。
③ 選択したプリンタが出力に障害がないかを検査する。
④ 自動的に選択したプリンタに出力する。
⑤ 選択したプリンタと出力を実行したことを通知する。

【００２７】ステップS116では、ステップS115で洗い出したＪＯＢを登録する。ステップS117で、洗い出したＪＯＢが全てなくなったと判断されるまで、以下を繰り返す。ステップS118では、ＪＯＢが実行可能か判断を行い、不可能と判断した場合は新たに行わなければならないＪＯＢを洗い出す。ステップS119で、洗い出したＪＯＢを順に実行する。

【００２８】〔実施形態２〕図６は、各種デバイスに対して指示する方法として、リモートコントローラ(リモコン)を利用する場合を説明する図である。

【００２９】このリモコン605は、表示部を具え、プリンタ601、602やＦＡＸ603、ＰＣ604などのデバイスに近づくだけで、そのデバイスに対応したコントロールパネルや情報を表示し、そのデバイスに対して指示を与え、コントロールすることができる。更に、リモコン605の近くのデバイスからネットワークを介して、遠く離れたデバイスをコントロールすることもできる。

【００３０】また、リモコン605は、各デバイスのステータスをモニタして、表示することができ、リモコン605の近くのデバイスを介して、ネットワーク上にある遠く離れたデバイスのステータスを取得することも可能である。

【００３１】〔実施形態３〕図７は、スキャナから文書を読み込み、特定のプリンタに送信しようとした場合の例を示す図である。

【００３２】文書がスキャナ701から読み込まれた後、利用者が送信先を（音声などを利用して）指定する。あるいは、カバーページに送信先が指定されており、自動的に送信先が決定される。このようにして、送信先として、モノクロプリンタＡ702が決定された後、
①送信先の状態を取得した結果、送信先が印刷不可能な状態の場合、自動的に代わりのプリンタ(例えば、モノクロプリンタＢ703）に送信し、印刷する。
②送信先として指定されたプリンタが（カラー、用紙サイズなどの条件から）印刷できない場合、そのページだけを他のプリンタ（例えば、カラーであれば、カラープリンタＣ704）に送信する。
③大量ページ数の文書の場合、いくつかのプリンタに分けて印刷を行う。
④送信先に転送先が指定されている場合、自動的に転送先に送信する。

【００３３】〔実施形態４〕図８は、スキャナから文書を読み込み、（ネットワークドメインが異なるなどの理由で）スキャナが管理できない特定のプリンタに送信しようとした場合の例を示す図である。

【００３４】文書がオースティンにあるスキャナ701から読み込まれた後、利用者が送信先を（音声などを利用して）指定する。あるいは、カバーページに送信先が文字列またはバーコードで記載されており、それを読み取って認識・解釈することで、自動的に送信先が決定される。このようにして、送信先として東京にあるモノクロプリンタＡ702が決定され、実際にモノクロプリンタＡ702に文書が送られた後に、
①モノクロプリンタＡ702が、自分自身では印刷不可能な状態の場合、代わりのプリンタ（モノクロプリンタＢ703）に送信し、印刷する。
②モノクロプリンタＡ702が、（カラーページを含む、用紙サイズが異なるなどの条件から）受信した文書を印刷できない場合、受信した文書全体あるいは印刷できないページだけを他のプリンタ（例えば、カラーであれば、カラープリンタＣ704）に送信する。
③大量ページ数の文書の場合、モノクロプリンタＡ702が自分自身で印刷するとともに、他のプリンタにも分けて印刷を行う。
④モノクロプリンタＡ702が自分自身に転送先が指定されている場合、自動的に転送先に転送する。

【００３５】実施形態３と実施形態４との相違点は、実施形態３では、スキャナ701が送信先を決定していたのに対し、実施形態４では、スキャナ701から文書を受信したプリンタ702が、転送先を決定する点にある。

【００３６】〔実施形態５〕図９は、スキャナから文書を読み込み、（ネットワークドメインが異なるなどの理由により）スキャナが管理できない特定のプリンタに送信しようとした場合の例を示す図である。

【００３７】文書がオースティンにあるスキャナ701から読み込まれた後、利用者が送信先を（音声やキーボードなどを利用して）指定する。あるいは、カバーページに送信先が文字列またはバーコードで記載されており、それを読み取って認識・解釈することで、自動的に送信先が決定される。このようにして、送信先として東京にあるモノクロプリンタＡ702が決定された後、実際にモ

ノクロプリンタA702に文書が送られた後に、より高度な処理が可能なパソコン705に転送される。その結果、パソコン705は、この文書が緊急の文書であると(例えばカバーレターの「至急」という文字から)判断し、文書の受け取り手が今どこに居るのかが、スケジュールデータなどから分かれば、その場所(例えば厚木)に転送する。その際、転送先がプリンタではなく、ＦＡＸ D706であるなどメディアが異なれば、メディア変換を行なって送信する。

【００３８】〔実施形態６〕図１０は、スキャナから文書を読み込み、（ネットワークドメインが異なるなどの理由により）スキャナが管理できない特定のプリンタに送信しようとした場合の例を示す図である。

【００３９】文書がオースティンにあるスキャナ701から読み込まれた後、利用者が送信先を（音声などを利用して）指定する。あるいは、カバーページに送信先が文字列またはバーコードで記載されており、それを読み取って認識・解釈することで、自動的に送信先が決定される。このようにして、送信先として東京にあるモノクロプリンタA702が決定された後、実際にプリンタA702に文書が送られた後に、より高度な処理が可能なパソコン705に転送される。その結果、パソコン705は、文書の受け取り手を認識し、通知文を作成して、電話707により、文書の受け取り手に文書の到着を通知することができる。

【００４０】〔実施形態７〕図１１は、プリンタの状態を通知する場合の例を示す図である。

【００４１】ＰC1102は、ネットワークを介してプリンタ1103のステータスを取得し、エラーやイベントの発生などステータスの変化を検知すると、その内容に応じて、ユーザあるいは管理者などの通知先を決定し、決定された通知先に対応するメディアを利用して通知を行なう。例えばユーザあるいは管理者の端末1101へ電子メールで通知したり、電話1104に電話連絡したり、ポケットベル1105にメッセージを送信したりする。

【００４２】これにより、例えば、図１０の例において、電話707に代えて、電子メールやポケットベルで文書の受信を通知してもよい。

【００４３】〔実施形態８〕本実施形態では、ＪOBを指示された装置が、ＪOBを自分で実行する場合に、そのまま行なうのではなく、ＪOBの種類や条件によっては、ＪOBの内容を実行前にユーザに通知・確認したり、ユーザにとって不要と判断されるＪOBを取り消したりする。

【００４４】図１２７は、ＪOBの種類と条件に対応して、事前通知を行うかどうかを指定した情報である。

【００４５】図１２は、本実施形態の処理手順を表わしたフローチャートである。

【００４６】まず、ステップS120で、指示されたＪOBを実行する前に、実行する処理や内容をユーザに通知するべきかを、図１２７のＪOBの種類と条件に対応した事前通知の指定情報を参照したり、実施形態２９で説明するようにカバーページなどに記載されている内容を解析することで、判断する。事前に通知する場合は、ステップS121からステップS122に進み、実行する処理や内容を通知する。更に、ステップS123で、必要があれば、ユーザから実行の許可をもらってから、ステップS124でＪOBを実行する。

【００４７】一方、事前に通知しない場合は、ステップS125で、ユーザにとって必要なＪOBであるかを判断し、必要であれば、ステップS127でＪOBを実行するが、不要であれば、ステップS128でＪOBを破棄する。

【００４８】次に、ＪOBの内容が情報のファイリングの場合に、システムが情報のファイリングを実行する前に内容を解析して、内容をユーザに伝える処理を行う例を説明する。

【００４９】図１３は、ファイリング処理で、ファイリングする情報を事前にユーザに伝える場合を示す図である。1301はファイル記憶装置、1302はスキャナ、1303はユーザ端末である。

【００５０】図１３におけるスキャナ1302の処理を、図１２のフローチャートに従って説明する。

【００５１】ステップS120で、情報のファイリングを行うＪOBであるため、図１２７の指定情報を参照して、ファイリングを行う前にファイリングする情報を通知すると判断し、情報をスキャンする。ステップS121で、ファイリングする情報を通知するため処理をステップS122に渡す。ステップS122で、スキャンした情報をネットワークを介してユーザ端末1303に通知する。ステップS124で、ファイリングのＪOBを行う。

【００５２】次に、受信情報がある場合に1枚目を受信して内容を解析し、ユーザに全く関係ない情報と判断された場合は、それ以降の情報を受信しない例を説明する。

【００５３】図１４は、多量の受信データを最初のページから必要であるか不要であるかを判断し、次ページ以降の情報を破棄する場合の図である。1401は受信側、1402は送信側のＰCである。

【００５４】図１４におけるＰC1401の処理を、図１２のフローチャートに従って説明する。

【００５５】ステップS120で、図１２７のＪOBの種類と条件に対応した事前通知の指定情報を参照した結果、情報の受信だけなので事前通知は行わないと判断する。ステップS121では、処理をステップS125に渡す。ステップS125で、受信した情報の最初のページを解析し、「庶務担当者へのお知らせ」とあるので、ユーザには関係ない情報であり、この情報の受信は不要であると判断する。ステップS126で、処理をステップS128に渡す。ステップS128では、受信した1枚目を破棄するとともに、2枚目以降の情報を受信しないで処理を終了する。

【００５６】〔実施形態９〕図１５は、本実施形態の処理手順を示すフローチャートである。本実施形態では、処理の実行を指示された装置が、装置自身で実行すべきか、他の装置で実行すべきかを判断し、判断結果に応じて、処理を自身で実行あるいは他の装置に指示する。

【００５７】まず、ステップS150では、ＪＯＢが入力されたかを判定し、入力されれば、ステップS151で、ＪＯＢテーブルに入力されたＪＯＢを追加する。ステップS152でＪＯＢテーブルにＪＯＢがあるかを調べ、あれば、ステップS153で、ＪＯＢを取り出す。ステップS154では、与えられた指示を解析し、その情報からＪＯＢの目的を解析する。ステップS155では、装置自身の状況を判断する。ステップS156では、ＪＯＢの目的に応じた他の装置の状況を判断する。

【００５８】装置自身及び他の装置の状況に基づいて、自分で実行することが最適であれば、ステップS157からステップS158へ進み、自分で実行することに決定し、ステップS159で、自分でＪＯＢを実行する。一方、自分で実行するのが最適でなく、ＪＯＢの目的に応じた最適な装置が他に存在するなら、ステップS160からステップS161に進み、自分以外の装置でＪＯＢを行なうことを決定し、ステップS162で、目的に応じた他の装置にＪＯＢの実行を指示する。ステップS163では、自分以外の装置でＪＯＢを実行したことをユーザに通知する。

【００５９】また、ＪＯＢの目的に応じた装置が他にも存在しなければ、ステップS160からステップS164に進み、ＪＯＢの目的を損なわない最適な方法をプランニングして、ステップS165で、そのプランをユーザに提案する。

【００６０】図１６は、本実施形態の情報の流れを示す図である。

【００６１】ＰＣ101のユーザが、スキャナ102で入力した情報をプリンタ104に出力するようなＪＯＢを与えた場合に、プリンタ104が例えば印字動作不良の場合に、プリンタ104は、与えられたＪＯＢが実行できないことを判断し、他の装置とコミュニケーションをとり、与えられたＪＯＢを実行可能なプリンタ103を見つける。これにより、ＪＯＢを自分で行わず、プリンタ103で行うとを判断し、プリンタ103にＪＯＢを指示する。更に自分が行った行動をユーザに伝えるために、ＰＣ101に通知する。図１６は、この流れを矢印で表わしたものである。

【００６２】以下に、図１６の処理において、各装置が処理する手順を、図１５のフローチャートにそって説明する。

【００６３】まず、スキャナ102の処理を説明すると、ステップS150で、情報をスキャンし、プリンタ104に情報を送信するＪＯＢを受取る。ステップS151で、ＪＯＢテーブルにこのＪＯＢを追加し、ステップS153でＪＯＢをとりだす。ステップS154でデータをスキャンし、送信するＪＯＢであることを理解する。ステップS155で、自分は正常に動作しており、指示された情報をスキャンし送信することに問題がないことを判断する。

【００６４】ステップS156で、他の装置にＪＯＢをまわすことができないことを理解する。ステップS157では、自分で実行することが最適なため、ステップS158へ処理を渡す。ステップS158で、自分で情報をスキャンすることを決定し、ステップS159で、情報をスキャンし、ネットワークを介して１の経路でプリンタ104に情報を送信する。

【００６５】一方、プリンタ104では、ステップS150で、受信した情報を出力するＪＯＢを受取る。ステップS151で、ＪＯＢテーブルにこのＪＯＢを追加する。ステップS153でＪＯＢを取り出す。ステップS154で、受信した情報からＰＣ101のユーザの情報を用紙に出力することを理解する。ステップS155で、自分にはトナーがなくなっており、用紙に出力することはできないと判断する。ステップS116では、ネットワークを介して他に受信した情報を出力できるプリンタがないかコミュニケートし、出力可能なプリンタ103があると判断する（２の経路）。

【００６６】ステップS157で、自分では実行できないためステップS160に処理を渡す。ステップS160では、情報を出力するというＪＯＢをプリンタ103で実行可能であるため、ステップS161で、プリンタ103に受信した情報を送信することを決定する。ステップS162で、プリンタ103に送信する情報を出力するように指示する（３の経路）。ステップS163で、ＪＯＢを指示したユーザのＰＣ101に、指示された出力はプリンタ103で行ったことを電子メールで通知する（４の経路）。図１２８は、ＪＯＢの目的に応じた装置が存在しない場合の情報の流れを示す図である。

【００６７】ＰＣ101のユーザが、スキャナ102で入力した情報をプリンタ104に出力するようなＪＯＢを与えた場合に、プリンタ104がトナー切れで印刷不能であると、プリンタ104は、他の装置とコミュニケーションをとり、与えられたＪＯＢの目的に応じたプリンタ103を見つけ、その状況を判断する。ここで、プリンタ103は用紙切れで印刷不能であり、それ以外にＪＯＢの目的に応じたプリンタが存在しないため、最適なプランとして、プリンタ104または103を印刷可能な状態に回復させて印刷することをユーザに提案するために、ＰＣ101に通知する。図１２８は、この流れを矢印で表わしたものである。

【００６８】次に、図１２８の処理において、各装置が処理する手順を、図１５のフローチャートにそって説明する。

【００６９】スキャナ102が文書を読取り、プリンタ104に送信するまでは同様である。プリンタ104では、ステップS150で、受信した情報を出力するＪＯＢを受取る。

ステップS151で、ＪＯＢテーブルにこのＪＯＢを追加する。ステップS153でＪＯＢを取り出す。ステップS154で、受信した情報からＰＣ101のユーザの情報を用紙に出力することを理解する。ステップS155で、自分にはトナーがなくなっており、用紙に出力することはできないと判断する。ステップS116では、ネットワークを介して他に受信した情報を出力できるプリンタがないかコミュニケートするが、プリンタ103も用紙切れのため印刷不可能であり、その外にも適当なデバイスが存在しないと判断する。

【００７０】ステップS157で、自分では実行できないためステップS160に処理を渡す。ステップS160では、情報を出力するというＪＯＢを実行可能なデバイスが存在しない為、ステップs164に進む。ステップs164では、情報を出力するというＪＯＢの目的である印刷を実現するための最適な方法をプランニングする。その結果、印刷可能なデバイスのステータスを正常に戻すことが、最適な方法であるとプランニングされる。続くステップs165で、プランニングされた結果に従って、図129に示したようなWindowによって、トナー切れのプリンタ104または用紙切れのプリンタ103を印刷可能な状態に回復させることをユーザに提案する。その後、ユーザの答えや、プリンタ自体のステータスの変化が入力ＪＯＢとして認識され、同様な処理が行われ、ユーザの目的を達成することができる。

【００７１】上記で述べたプランニングの詳細については、具体例に基づいて実施形態１１以降で説明する。

【００７２】〔実施形態１０〕実施形態９の処理において、ステップS158、S159で、自分でＪＯＢを実行すると判断し、実行する場合に、更に指示されたＪＯＢを実行するにあたり、問題の発生の有無を、後述する図１７の手順のように詳細に解析し、ＪＯＢを実行する環境や状況によっては、ＪＯＢ実行することが適さないと判断された場合に問題を通知したり、ＪＯＢを拒否する場合がある。

【００７３】例えば、機密書類の印刷の指示があった場合に、許可されたユーザと確認されない場合は、その指示を拒否する。

【００７４】図１７はＪＯＢ実行の詳細な手順を表わすフローチャートである。

【００７５】ステップS170で、指示されたＪＯＢの実行に問題はないか解析する。ステップS171で、ＪＯＢの実行に問題がなければ、ステップS175で、ＪＯＢを実行する。問題があれば、ステップS172で、発生した問題をユーザに通知するか、ＪＯＢの実行を拒否するかを判断する。通知する場合は、ステップS174で問題を通知する。一方、拒否する場合は、ステップS176で、ＪＯＢを拒否し、拒否を通知する。

【００７６】以下、ＰＣ101のユーザが、スキャナ102で読んだ機密情報をプリンタ104に出力するよう指示した場合を、図１５、１７に基づいて説明する。図１８は、読み込む機密情報の例を示す図である。

【００７７】まず、スキャナ102では、ステップS150で、情報をスキャンし、プリンタ104に情報を送信するＪＯＢを受取る。ステップS151で、ＪＯＢテーブルにこのＪＯＢを追加する。ステップS153で、ＪＯＢを取り出す。ステップS154で、データをスキャンし、送信するＪＯＢであることを理解する。ステップS155で、自分は正常に動作しており、指示された情報をスキャンし送信することに問題がないことを判断する。

【００７８】ステップS155で、他の装置にＪＯＢをまわすことができないことを理解する。ステップS157で、自分で実行することが最適なためステップS158へ処理を渡す。ステップS158で、自分で情報をスキャンすることを決定する。

【００７９】ステップS170で、情報をスキャンした結果、出力不可の機密書類であることを解析した。ステップS171で、ＪＯＢの実行には問題がある。ステップS172で、ＪＯＢ（情報をスキャンして出力すること）を拒否すると判断する。ステップS173で、ＪＯＢの拒否を行うのでステップS176へ処理を渡す。ステップS176で、ＪＯＢの拒否を通知する。

【００８０】また、同様にして、同一のシステムを複数のユーザが使用する場合に、ログイン名などから現在のユーザを認識し、他のユーザのファイルの内容の出力の指示も拒否することができる。また、ユーザからの指示ではなく、外部から文書を受信した場合にも、宛先のユーザが現在のユーザと異なれば、受信文書の出力や受信の事実の通知を拒否したり、宛先のユーザがシステムを利用するまで、処理を保留したりすることもできる。

【００８１】〔実施形態１１〕図４に従って、処理の流れを説明する。まず、ステップS109で、ＪＯＢテーブルを初期化する。ステップS110で、利用者からの入力や、システムが検知可能なデバイスなどからの入力があるかどうかチェックする。ステップS111で、上記ステップで入力された内容を解析するための、入力解析 ＪＯＢ を ＪＯＢテーブルに追加する。ステップS112で、実行可能な ＪＯＢが存在するかチェックし、あれば、ステップS113で実行可能な ＪＯＢを取得する。ステップS114で、ＪＯＢを実行させようとした背景となる目的を理解する。

【００８２】ステップS115で、入力された内容や、システムが検知可能なデバイスなどの状態や、システムが現在知っている知識その他から、考えられる処理をプランニングし、ステップS116で、必要ならば新たなＪＯＢを追加する。ステップS117－S119で、ステップS115でプランニングされた内容にしたがって処理を実行する。ＪＯＢがなくなるまで繰り返し、なくなったらステップS110に戻る。

【００８３】利用者が <file A>を印刷しようとした場

合について、説明する。図２２は、<file A>の内容を表わす図であり、車の絵の部分がカラーで描かれているものとする。また、図２３は、本実施形態のシステムの構成を示す図であり、ユーザがＰＣ2301から印刷指示を行い、通常使うプリンタとしてモノクロプリンタ2303が設定されており、それ以外にカラープリンタ2302も接続されている。

【００８４】ステップS109で、ＪＯＢテーブル初期化する。ステップS111で、入力が何も無い時に行われるＪＯＢをＪＯＢテーブルに追加する(図19)。また、図２０のWindowで、ファイル名 <file A>を指定し、印刷を選択すると、ステップS110で、入力があると判断されステップS111へ進む。ステップS111で、図２１に示すように、入力解析ＪＯＢをＪＯＢテーブルに追加する(図２１)。ステップS112で、実行可能な ＪＯＢが存在するので、ステップS113へ進む。ステップS113では、実行可能なＪＯＢ:入力 "印刷 <file A>"の解析を取得する。ステップS114で、入力"印刷 <file A>" の目的は、<file A>を印刷することだと理解する。

【００８５】ステップS115では、下記の条件・状況から、カラープリンタへの印刷を利用者に提案することをプランニングする。

・<file A>にはカラーの部分が含まれる(図２２の車の部分)。

・使用可能なカラープリンタ2302が存在する(図２３)。

【００８６】ステップS119で、利用者に「カラープリンタで印刷しますか？」と問い合わせる(図２４)。同時に、ＪＯＢテーブルに、利用者の応答が無い場合の対応のＪＯＢを追加する(図２５)。そして、ステップS110に戻る。

【００８７】ステップS110で、10分間入力がないと、ステップS112で、実行可能なＪＯＢが存在するので、ステップS113へ進む。ステップS113で、実行可能なＪＯＢ：利用者の応答が無い場合の対応を取得する。

【００８８】ステップS114で、利用者の応答が無い場合の対応の目的は、提案を受け入れてくれるかどうかを知ることだと理解する。ステップS115で、下記の条件・状況から、電話を使って利用者に問い合わせることを決定する。

・利用者が現在いる場所の電話番号を知っている(図２６のスケジュールデータ)。

・緊急に印刷しなければならない(図２６のスケジュールデータで、13時からの商談にfile Aを使用する)。

【００８９】ステップS119で、利用者に「カラープリンタで印刷しますか？」と問い合わせる(図２７)。同時に、ＪＯＢテーブルに利用者の応答が無い場合の対応のＪＯＢを追加する(図２８)。ステップS110に戻る。

【００９０】ステップS110で、図２７のように利用者が「はい、よろしく」と言うと、入力があると判断されステップS111へ進む。ステップS111で、入力解析ＪＯＢ

をＪＯＢテーブルに追加する(図２１)。ステップS112で、実行可能なＪＯＢが存在するので、ステップS113へ進む。ステップS113で、実行可能なＪＯＢ:入力“はい、よろしく”の解析を取得する。ステップS114で、入力“はい、よろしく”の目的は、提案を受け入れたことを示すことだと理解する。

【００９１】ステップS115で、<file A>をカラープリンタ2302に送って、印刷することを決定する。ステップS118 で、<file A>をカラープリンタ2302に送って印刷する。同時に、ＪＯＢテーブルに印刷が正常に終了したかどうかの確認のためのＪＯＢを追加する(図２９)。ステップS110に戻る。

【００９２】ステップS110で、入力無し、ステップS112で、図３０のように、プリンタステータスが「印刷中」から「印刷済み 文書有り」に変化すると、実行可能なＪＯＢが存在するので、ステップS113へ進む。ステップS113で、実行可能なＪＯＢ:プリンタステータスに対応した処理を取得する。ステップS114で、図３１のプリンタステータス表から、ステータス「印刷済み文書有り」は印刷された文書がプリンタのトレイに残されているという意味なので、その目的は、印刷済み文書が利用者に渡ることだと理解する。

【００９３】ステップS115で、すぐに利用者が取りに来るかもしれないので、待つことに決定する。ステップS116で、ＪＯＢテーブルに印刷済み文書を取りに来たかどうかの確認のためのＪＯＢを追加する(図３２)。ステップS110に戻る。ステップS110で、10分間入力がない。ステップS112で、印刷済み文書が残されたままだとすると、実行可能なＪＯＢが存在するので、ステップS113へ進む。ステップS113で、実行可能なＪＯＢ:印刷済み文書がある場合の対応を取得する。ステップS114で、図３１から、ステータス「印刷済み文書有り」は印刷された文書がプリンタのトレイに残されているという意味なので、その目的は、印刷済み文書が利用者に渡ることだと理解する。ステップS115で、10分間文書が残されたままなので、利用者は忘れていると判断して、「印刷済み文書がカラープリンタにあります」と通知することに決定する。ステップS119で、「印刷済み文書が BJC600にあります」と通知する(図３３)。同時に、ＪＯＢテーブルに利用者の応答が無い場合の対応のＪＯＢと、印刷済み文書を取りに来た場合の対応のＪＯＢを追加する(図３４)。ステップS110に戻る。

【００９４】ステップS110で、入力が無い。ステップS112で、図28のようにプリンタステータスが「印刷済み文書有り」から「正常」に変化すると、実行可能なＪＯＢが存在するので、ステップS113へ進む。ステップS113で、実行可能なＪＯＢ:印刷済み文書有りに対応したＪＯＢの見直しを取得する。ステップS114で、印刷済み文書有りに対応したＪＯＢの見直しの目的は、不要になったＪＯＢを削除することだと理解する。ステップS115

で、利用者の応答を待っているＪＯＢを削除することを決定する。ステップS119で、利用者の応答を待っているＪＯＢを削除する。ここでは、新しいＪＯＢは追加されない。初期状態で、ステップS110に戻る。

【００９５】図３６、３７は、プラン及びアクションのルールを示す図である。

【００９６】利用者が図２０の印刷 Window において、ボタン〔印刷〕を押した場合、図３６の表のプラン&ｱｸｼｮﾝを参照して、利用者の目的は現在の状態が「印刷済み文書有り」になることだと判断される。さらに、「印刷済み文書有り」は目的「印刷済み文書取得」の前提条件にもなっているので、最終的な利用者の目的は「印刷済み文書取得」であると判断される。

【００９７】利用者が図２４や図３３の質問 Window や、図２７の電話による問い合せに対して、音声やマウス操作等により賛意表明や反意表明の操作を行った場合、利用者の目的は問い合せに対する賛意表明や反意表明だと判断される。

【００９８】図３７において、システムの究極の目的は、ユーザの目的達成である。そのための前提条件として、システムは安定していなければならない。また、その上でシステムは①ユーザの目的を理解し、②目的達成のプランニングをし、実行する。

【００９９】システムの安定の為には、異状時にシステムを正常化することはもちろん、コストの削減やシステムの不安定化の回避の為、実行している必要のないときには電源をOFFする。

【０１００】図３８は、図３７の一部をわかりやすく図示したものである。

【０１０１】ユーザの目的を理解する為には、入力があった場合、入力を理解する。また、図３６のユーザの目的の「印刷済み文書取得」に対応して、「印刷済み文書をユーザに渡す」ことがシステムの目的として存在する。

【０１０２】印刷済み文書をユーザに渡す為には、印刷済み文書が存在していることが前提であり、その上で文書がある場所をユーザに教えることで目的を達成しようとしている。もちろん、利用者が実際に文書を取得する為には、利用者が文書を取りに来るか、何らかの方法で利用者に文書を届けなければならないが、本システムでは詳しく定義はしておらず、印刷済み文書が無くなることが利用者が取得したことと等価であると判断している。

【０１０３】一方、印刷済み文書が有る為には、印刷元文書が有るとともに、印刷条件が明確化されており、対応する印刷環境が正常に存在していることが前提であり、その上で対応する印刷環境を選択し、印刷を実行する。印刷元文書が有る為には、印刷元文書を作成すればよい。印刷条件を明確化する為には、条件が不明確な部分をユーザに問い合せればよい。印刷環境が正常でいるためには、印刷環境が異常な場合、印刷環境を正常化すればよい。また、ユーザの意志を取得する為には、一定時間ユーザからの応答が無い場合、あらためてリプランニングする必要がある。

【０１０４】各デバイスのプロパティは、各デバイス内部のメモリまたは各デバイスを管理しているサーバ内のメモリに格納されている。図３９は各デバイスのプロパティの例である。各デバイスのステータスは、各デバイス内部に持ち、各デバイスが能動的に発信するか、他のサーバなどの要求に従って受動的に返すことで、他の装置に伝えられる。

【０１０５】本システムにおいては、プロパティは各デバイス固有のものであり、変化することはないので、システムの起動時あるいはネットワーク上の接続に変更があったときに取得される。一方、ステータスはプランニングを行う過程において、必要に応じて取得されるか、あるいはある一定時間間隔で取得し、内部のメモリ内の情報として更新記憶される。

【０１０６】〔実施形態１２〕実施形態１１と同じく、<file A>を印刷する場合に、カラープリンタがBusyの場合の処理の例である。

【０１０７】まず、入力：“印刷 <file A>”があると、これをＪＯＢテーブルに追加し、目的は印刷であると理解される。ここで、条件・状況として、文書にカラーの部分が含まれており、使用可能なカラープリンタがBusy であるとする。そこで、Busyでなくなるまで待つか、モノクロで印刷するかを、利用者に質問するというプランを立てる。「カラープリンタ がBusy です。待ちますか？それとも、モノクロプリンタで印刷しますか？」をユーザに質問する。利用者が “待つ”を選択した場合、Busyでなくなるまで待機する。

【０１０８】〔実施形態１３〕

入力：“<file A>は、<file A'>に変更された。”があった場合、ＪＯＢテーブルの更新が目的であると理解する。条件・状況で、ＪＯＢテーブルに<file A>の印刷ＪＯＢ がある。そこで、印刷対象を<file A'>に変更するか、利用者に質問する。というプランを立てる。そして、「修正前の<file A>の代りに、<file A'>を印刷しますか？」という質問を発する。

【０１０９】〔実施形態１４〕本実施形態は、複数の装置が接続されたシステム（この場合はネットワークに接続されている）において、各装置にＪＯＢが指示された場合に、それぞれの装置がＪＯＢの目的を解析し、自分の状況や指示装置の状況から、指示された装置でのＪＯＢ実行を行わない方が良いと判断した場合に、ＪＯＢを他の装置に転送して実行するための実施形態である。

【０１１０】図４１は、複数の装置がネットワークに接続されている状態を表した２つの例であり、(A)は、スキャナ411、プリンタ412、413の各装置がそれぞれの状況を判断できる環境のネットワークである。(B)は、ス

キャナ411が、プリンタ412、413の状況を判断できない環境のネットワークである。

【０１１１】図４２は本実施形態の処理を行うための機能構成を示す図である。ＪＯＢ受取り部421は、ユーザまたは他の装置からＪＯＢを受取る。受取られたＪＯＢは、ＪＯＢテーブル422に登録される。ＪＯＢ解析部423は、ＪＯＢテーブル422に登録されているＪＯＢを取り出して解析する。他装置状況判断部424は、接続している他の装置の属性や現在の状態などを判断する。自装置状況判断部427は、装置自身の属性や現在の状態などを判断する。

【０１１２】最適プランニング部425は、ＪＯＢの実行に関して最適なプランを立てる。ＪＯＢ実行判断部426では、ＪＯＢを実行するか否か、実行する場合は、自装置で実行するのか、他の装置で実行するのか等を判断する。自装置で実行する場合は、ＪＯＢ実行部428で実行する。他の装置で実行する場合は、他装置へのＪＯＢ転送部429により、他の機器へＪＯＢを転送する。実行通知部211は、実行結果や他の装置にＪＯＢを転送したことなどをユーザに通知する。

【０１１３】図４３は本実施形態を実現するための処理の流れを表わしたメインのフローチャートである。まず、ステップS430では、利用者からの入力ＪＯＢや、システムが検知可能なデバイスなどからの入力ＪＯＢや、これらのＪＯＢを解析した結果や、アイドリング時に自分自身で生成した新たなＪＯＢがあるかどうかチェックして、ＪＯＢが入力されたかを判定する。入力されれば、ステップS431で、ＪＯＢテーブルに入力されたＪＯＢを追加する。ステップS432でＪＯＢテーブルにＪＯＢがあるかを調べ、あれば、ステップS433で、ＪＯＢを取り出す。ステップS434では、与えられた指示を解析し、その情報からＪＯＢの目的を解析する。ステップS435では、他の装置へのＪＯＢがあるかを判断して、あれば、ステップS436で他の装置を制御する。なければ、ステップS437で自装置を制御する。

【０１１４】図４４は、メイン処理の中で、ステップS436で他の装置に対して処理を行う場合に他の装置を制御するときの処理の流れを表わすフローチャートである。

【０１１５】ステップS440で、ＪＯＢ中で指定された装置の状況を判断し、この判断に基づいて、ステップS441では、指定された装置でJOBを実行することに問題があるか判断する。問題がなければ、ステップS442で、指定された装置にＪＯＢを送信する。指定された装置での実行に問題がある場合には、ステップS443で、指定された装置以外の装置で、そのJOBに適した装置があるかを調べ、あれば、その状況を判断する。その結果、指定された装置以外でそのＪＯＢを実行可能な装置があれば、ステップS445で、その装置にＪＯＢを転送し、ステップS446で、ＪＯＢを転送したことをユーザに通知する。一方、指定された装置以外の装置で、そのJOBに適した装置がないか、あっても現在利用できない場合は、ステップS447で、ＪＯＢの目的を損なわない最適なプランを立て、ステップS448で、そのプランをユーザに提案する。

【０１１６】図４５は、メイン処理の中で、ステップS437で自分の装置で処理を行う場合の処理の流れを表わすフローチャートである。

【０１１７】ステップS450で、自装置の状況を判断し、この判断に基づいて、ステップS451では、自装置でJOBを実行することに問題があるか判断する。問題がなければ、ステップS452で、ＪＯＢを実行する。自装置での実行に問題がある場合には、ステップS453で、自装置以外の装置で、そのJOBに適した装置があるかを調べ、あれば、その状況を判断する。その結果、自装置以外でそのＪＯＢを実行可能な装置があれば、ステップS445で、その装置にＪＯＢを転送し、ステップS446で、ＪＯＢを転送したことをユーザに通知する。一方、自装置以外の装置で、そのJOBに適した装置がないか、あっても現在利用できない場合は、ステップS447で、ＪＯＢの目的を損なわない最適なプランを立て、ステップS448で、そのプランをユーザに提案する。

【０１１８】図４６は、図４１の(A)において、スキャナ411から読み込んだ情報をプリンタ412にＡの経路で出力するよう指示されたが、スキャナ411の他装置状況判断部424において、プリンタ412に故障を発見したために、プリンタ413にＢの経路を通して出力を行なったときの図である。

【０１１９】図４７は、図４１の(B)において、スキャナ411から読み込んだ情報をプリンタ412にＡの経路で出力するよう指示され、スキャナ411はプリンタ412の状況を確認しようとするが、離れた場所にあるため、ネットワークの状況を考慮して無条件に情報を送信し、プリンタ412が、自分自身が故障しているために、受取った情報（ＪＯＢ）をプリンタ413にＢの経路で転送した場合の図である。

【０１２０】以下に図４６、４７の処理を行う過程を、図４３－４５のフローチャートに基づいて説明する。

【０１２１】図４６のスキャナ411からプリンタ412へ出力ＪＯＢが発生した場合、スキャナ411の処理は、以下のようになる。

【０１２２】まず、ステップS430で、情報をスキャンし、プリンタ412に情報を送信するＪＯＢを受取る。ステップS431で、ＪＯＢテーブルにＪＯＢを追加する。ステップS433で、ＪＯＢを取り出す。ステップS434で、データをスキャンし、このＪＯＢが、指示されたプリンタに送信するＪＯＢであることを理解する。ステップS435で、自分がスキャンした情報をプリンタ412で出力するという他の装置で行うＪＯＢがあることを判断する。この判断により、ステップS436で、図４４の他装置制御処理に処理を渡す。

【０１２３】ステップS440で、指示されたプリンタ412

の現在の状態を取得する。この結果、プリンタ412から故障中である情報を受取り、ステップS441で、出力不可能であることを判断する。この場合、故障中でなくても例えば、用紙切れ、トナー切れなどといった出力を行うことができない状態である場合も考えられる。ステップS443で、指示された装置であるプリンタ412では、ＪＯＢを実行することが不可能なため、ＪＯＢを実行可能な同様な他の装置を、ネットワーク上からコミュニケートをとり、検索する。ステップS444で、ＪＯＢを実行可能なプリンタ413を発見したので、プリンタ413でのＪＯＢの実行を決定する。

【０１２４】ステップS445で、スキャンした情報をプリンタ413に対して送信する。ステップS446で、指示された以外のことを実行したので、指示した相手に対してＪＯＢの変更を行ったことを通知する。以上で、指示されたＪＯＢの処理を終了したので、次のＪＯＢが入力されるまで待つ。

【０１２５】次に、図４７のスキャナ411からプリンタ412へ出力ＪＯＢが発生した場合の処理を説明する。

【０１２６】スキャナ411では、ステップS430で、情報をスキャンし、プリンタ412に情報を送信するＪＯＢを受取る。ステップS431で、ＪＯＢテーブルにＪＯＢを追加し、ステップS433で、ＪＯＢを取り出す。ステップS434で、データをスキャンし、このＪＯＢが、指示されたプリンタに送信するＪＯＢであることを理解する。ステップS435で、自分がスキャンした情報をプリンタ412で出力するという他の装置に対して行うＪＯＢがあることを判断する。この判断により、ステップS436で、図４４の他装置制御処理に処理を渡す。

【０１２７】ステップS440で、指示されたプリンタ412とコミュニケートしてその状況を知ろうとするが、プリンタ412が離れた場所にあることが確認されるので、プリンタ412の状態に関係なく情報を送信することを判断する。ステップS441で、プリンタ412は離れているので、問題ないものと判断する。ステップS442で、指示された装置であるプリンタ412にスキャンした情報を送信し、ＪＯＢを渡す。以上で、指示されたＪＯＢの処理を終了したので、次のＪＯＢが入力されるまで待つ。

【０１２８】一方、プリンタ412では、ステップS430で、受信した情報を出力するＪＯＢを受取る。ステップS431で、ＪＯＢテーブルにＪＯＢを追加する。ステップS433で、ＪＯＢを取り出す。ステップS434で、受信した情報を自分が出力するＪＯＢであることを理解する。ステップS435で、他の装置に対するＪＯＢはないと判断する。ステップS437で、図４５の自装置制御処理に処理を渡す。

【０１２９】ステップS450で、自分の現在の状態を見る。ステップS451で、自分は現在故障中でＪＯＢの実行ができないことを判断する。この場合、故障中でなくても例えば、用紙切れ、トナー切れなどといった出力を行うことができない状態である場合も考えられる。ステップS453で、ＪＯＢを実行可能な、自分と同様な他の装置をネットワーク上からコミュニケートをとり、検索する。

【０１３０】ステップS454で、ＪＯＢを実行可能なプリンタ413を発見したので、プリンタ413でのＪＯＢの実行を決定する。ステップS455で、プリンタ412に送信されてきた情報をプリンタ413に対して再送信する。ステップS456で、指示された以外の処理を実行したので、指示した相手に対してＪＯＢの変更を行ったことを通知する。ここでは、指示した相手に通知を行ったが、出力先が指示した相手から離れた場所であるため、受取り人に対して通知を行うようにしてもよい。以上で指示されたＪＯＢの処理を終了したので、次のＪＯＢが入力されるまで待つ。プリンタ413は何も問題無く、受取った情報を出力するＪＯＢを実行可能であるため、ＪＯＢの実行を行なう。

【０１３１】以上の実施形態では、各装置が自動的にＪＯＢの転送を行ったが、それぞれの装置に問題がある場合は、ユーザがＪＯＢを転送するように順位を付けて設定することも可能である。例えば、本実施形態においては、ユーザはスキャンした文書を指定したプリンタで印刷することをＪＯＢとして入力しているが、この時に、指定したプリンタが使用不可能な場合に印刷を代行する第２、第３のプリンタを同時にＪＯＢ中に設定しておいても良い。これにより、ステップs443またはステップs453において、ＪＯＢに適した機器として、設定された第２、第３のプリンタが選択され、その状況が判断される。また、逆にＪＯＢを受け取るプリンタの側に、自分自身が使用不可能な場合に印刷を代行する第２、第３のプリンタを設定しておいても良い。この時には、前述のようにＪＯＢ自身に第２、第３のプリンタを設定されてなかったとしても、ＪＯＢを受け取ったプリンタが、自分自身に設定されている指定にしたがって、ＪＯＢを転送することができる。

【０１３２】また、故障や動作不能な場合以外であっても、ＪＯＢを行うことに適さないスペック、例えば、モノクロプリンタへのＪＯＢがカラーの情報の印刷である場合や、ＪＯＢ待ちが多く、すぐに処理できない場合などでも、ＪＯＢを行わない判断条件となりうる。

【０１３３】〔実施形態１５〕本実施形態は、プリンタが受信した緊急情報をユーザに出力するＪＯＢを実行するにあたり、図４５のステップS450の自装置の状況を判断する処理において、ＪＯＢの実行の問題を判断する判断材料として、目的のユーザのスケジュール情報も加味する場合の処理を表わす。

【０１３４】ここでは、緊急情報を伝えるべきユーザが外出しており、外出先にネットワークに接続されたプリンタ413が存在する図４８に示す環境の処理を説明する。

【０１３５】この場合、図４３の手順において、ステップS434で、ＪＯＢの目的は、受信した情報をユーザに緊急に連絡することであることを理解する。ステップS435で、他装置へのＪＯＢはこの時点ではないので、ステップS437に処理を渡す。ステップS437では、図４５の自装置制御処理に処理を渡す。

【０１３６】ステップS450で、自装置の状況を判断する場合に、送信先として指示されたユーザのスケジュールを装置414に確認し、外出中であると判断する。ステップS451で、ユーザが外出中なので、緊急の連絡には、自装置での実行に問題があると判断する。ステップS453で、外出先に情報を出力可能なプリンタがあるか確認する。ステップS454で、出力可能なプリンタ412があることを確認したので、そのプリンタで出力することを決定する。ステップS455で、プリンタ412に情報を送信する。ステップS456で、ＪＯＢを転送したことを送り元と送り先のユーザに通知する。

【０１３７】また、ステップS443で、ＪＯＢの転送先として同様の出力が可能な装置がない場合で、ユーザの使用する他の装置、例えばＰＣやＦＡＸ、電話などがあると判断した場合などには、ステップS444では、その装置で実行するとしてもよい。但し、情報をそのまま送信できないため、ステップS445では、プリンタへの出力情報を変換し、電子メール文書やＦＡＸ文書にして送信したり、音声情報に変換して出力することになる。

【０１３８】この時、ステップS446では、出力に用いるメディアによっては、あらためて別のメディアを利用してＪＯＢを転送したことを通知する必要はなく、同一のメディアで同時に伝えることもできる。例えば、電話を利用して出力情報を送信する時には、出力情報を伝えた後又は前に転送したという事実を伝える方が、よりスマートであると考えられる。

【０１３９】なお、ステップS443で、上述したＰＣやＦＡＸ、電話などを、プリンタで実行すべきＪＯＢに適した機器とは判断せずに、ステップS447で、それらの装置を利用することをＪＯＢの目的を損なわない最適なプランとして決定し、ステップS448で、そのプランを提案するようにしてもよい。

【０１４０】〔実施形態１６〕図４９に、本実施形態の処理手順を示す。図４９は、図４３のフローチャートにＪＯＢがなかった時の処理として、ステップS498～500を加えたものである。ステップS498で、他の装置の現在の動作状況を調査し、ステップS499で、自分で実行可能なＪＯＢが実行されずに他の装置に溜まっているかを判断し、溜まっている場合に、ステップS500で、そのＪＯＢを取り出して自装置のＪＯＢテーブルに追加し、相手装置のＪＯＢテーブルから削除する。このようにして、本実施形態では、自らＪＯＢを見つけ出して処理する。

【０１４１】図５０は、この処理を行う状況で、プリンタ412にＪＯＢが存在しておらず、プリンタ413が待ちＪＯＢを10件持っているので、プリンタ415が、プリンタ413のＪＯＢを取り出して、自装置で処理する概念を表わした図である。

【０１４２】プリンタ415の処理の流れは以下の通りである。ステップS492で、ＪＯＢはないので処理をステップS498に渡す。ステップS498で、他の装置であるプリンタ412とプリンタ413の現在の状況を調査する。ステップS499で、プリンタ413に自分で実行可能なＪＯＢがあることを判断する。ステップS500で、プリンタ413からそのＪＯＢを取り出し、自分のＪＯＢテーブルに追加する。さらに、プリンタ413から、取り出したＪＯＢを削除する。ステップS490で、ＪＯＢの入力はない。ステップS492で、先ほど自分で追加したＪＯＢが存在するので、ＪＯＢの実行を行うために処理をステップS493に渡す。

【０１４３】以降、実施形態１４、１５で説明した自らの装置で実行するための動作を行ない、処理を終了する。

【０１４４】〔実施形態１７〕図５１は、本実施形態の装置を用いたシステムにおける、プリントＪＯＢの流れ、及びその他の情報の流れを示した図である。なお、図中の太い矢印はプリントＪＯＢの流れを表し、点線の矢印はその他の情報の流れを表している。

【０１４５】ただし、本実施形態で述べているプリントＪＯＢとは、印刷対象となっている文書、及び印刷枚数、印刷品質、印刷サイズなどの印刷時に参照されるパラメータ類を含めたものである。また、その他の情報には、各プリンタが持っている印刷中、正常、用紙無し等のステータスや、プリントＪＯＢスケジューリング部が持っているプリントＪＯＢのスケジュールがある。

【０１４６】図５１において、クライアントマシン510では、プリントＪＯＢ作成部512でプリントＪＯＢを作成し、プリントＪＯＢ記憶部513にいったん記憶した後、プリントＪＯＢ送信部514により、プリントＪＯＢを作成したクライアントマシン510から、プリンタを管理するサーバマシン511に送信される。

【０１４７】サーバマシン511では、送られてきたプリントＪＯＢをプリントＪＯＢ受信部516により受け取り、プリントＪＯＢのパラメータ類が未設定の場合はプリントＪＯＢ自動設定部517に渡し、すでに設定されている場合はプリントＪＯＢ自動変更部518に渡す。

【０１４８】プリントＪＯＢ自動設定部517では、プリントＪＯＢから取得される緊急性、経済性、品質などを考慮しながら、未設定の印刷パラメータを設定する。一方、プリントＪＯＢ自動変更部518では、同様な処理を、すでに設定されているパラメータを変更することでも実現する。このようにして、設定または変更されたプリントＪＯＢは、プリントＪＯＢスケジューリング部520が持っているプリントＪＯＢのスケジュールに登録され、そこから順次プリントＪＯＢ送信部519へ読み出さ

れて、または直接プリントＪＯＢ送信部519に渡り、印刷される。

【０１４９】ここで、プリントＪＯＢ自動設定部517及びプリントＪＯＢ自動変更部518には、プリンタ状況認識部515を介して取得された、印刷中、正常、用紙無し等の使用可能なプリンタのステータスが渡り、プリントＪＯＢの設定または変更において利用される。また、同様に、プリントＪＯＢスケジューリング部520が持っているプリントＪＯＢの印刷スケジュールも渡り、利用される。

【０１５０】また、図５１に表してあるように、プリントＪＯＢは異なる経路で流れることも想定される。例えば、プリントＪＯＢを作成したマシンと、プリンタを管理しているマシンが同じ場合には、プリントＪＯＢ送信部514を通らないこともありえる。

【０１５１】図５２は、プリントＪＯＢ自動設定部517の処理の流れを表したフローチャートである。プリントＪＯＢ自動設定部517では、指定された品質を満足する範囲で、できるだけ速く、できるだけ経済的に印刷できるようにパラメータを自動設定する。

【０１５２】図５２では、まずステップS520で、シュミレートの準備として、印刷時間やトナー使用量を決定する要因を初期化する。続いて、ステップS521で、品質決定変数を品質最高値（例えば５）で初期化し、ステップS522で、印刷時間をシュミレートする。ステップS523で、シュミレートされた印刷時間が指定値を満たすかを判定する。満たされる場合は、ステップS524で、トナー使用量をシュミレートする。ステップS525で、シュミレートされたトナー使用量が指定値を満たすかを判定する。満たされる場合は、ステップS526で、現在の品質決定変数の値にＪＯＢを変更する。

【０１５３】ステップS523または525で、指定された値を満たさない場合、ステップS527で、品質決定変数を1つ減らす。ステップS528で、指定された品質が満たされるかを判定し、満たされるなら、ステップS522に処理が戻される。満たされなければ、自動設定不能エラーとなって終了する。

【０１５４】図５３は、プリンタA521とプリンタB522の指定品質の違いによる、1文字あたりの印刷時間とトナー使用量を表した図である。これらの値は、各プリンタ固有の不変の値でも良いし、過去に行った印刷の所用時間やトナー使用量を測定し、この測定値から平均を取るようにした動的に変化する値でも良い。

【０１５５】図５４は、本実施形態で印刷されるプリントＪＯＢの内容と、利用者が指定したパラメータを表した図である。本実施形態を用いたシステムでは、図５４で表したプリントＪＯＢの内容と、設定パラメータとをあわせてプリントＪＯＢと呼んでいる。本実施形態では、印刷時間とトナー使用量をシュミレートする為に、プリントＪＯＢの印刷量を文字数換算で500文字として説明している。また、利用者は緊急性のみを1分以内と指定し、経済性や品質はデフォルト値のまま指定しなかったものとしている。

【０１５６】図５４の例で、プリントＪＯＢ自動設定部517が起動されると、まずステップS520のシュミレートの準備において、印刷時間やトナー使用量を決定する要因を初期化する。例えば、図５３の表に定義したように、プリンタA521及びプリンタB522の最低品質（＝1）の場合のそれぞれの1文字あたりの印刷時間は平均100mステップSと200mステップSであり、1文字あたりのトナー使用量は平均100mgと200mgである。

【０１５７】続いて、ステップS521で、品質決定変数を品質最高値（例えば５）で初期化し、ステップS522で、印刷時間をシュミレートする。例えば、プリンタA521とプリンタB522は印刷可能であり、プリントＪＯＢスケジューリングでスケジュールされているプリントＪＯＢが1つも無いとすれば、すぐに印刷を開始することができ、待ち時間は不要である。よって、印刷対象のプリントＪＯＢに500文字含まれているとした場合、プリンタAでは250秒かかり、プリンタBでは500秒かかるとシュミレートされる。

【０１５８】すると、ステップS523では、図５４の指定パラメータで指定された緊急性1分以内を満たすことができないので、ステップS527で、品質決定変数を1つ減らす。ここで、図５４の指定パラメータでは品質は指定されていないので、再びステップS522の印刷時間のシュミレートに処理が戻される。これらの処理が繰り返された結果、品質が最低品質の１になって初めて印刷時間がプリンタA521で50秒となり、緊急性を満たすので、品質を品質決定変数の値（＝１）に設定し、正常終了する。

【０１５９】ここで、もし品質を２以上に設定していたとすると、利用者が設定したパラメータを満たすことができないので、自動設定不能エラーとなって終了する。

【０１６０】〔実施形態１８〕図５５は、プリントＪＯＢ自動変更部518の処理の流れを表したフローチャートである。プリントＪＯＢ自動変更部518では、指定された緊急性及び経済性を満足する範囲で、できるだけ高品質で印刷できるようにパラメータを自動変更する。その上で、すべての指定を満足することができない場合、最優先の指定を満足させ、その他の指定はできるだけ指定に近いように変更する。

【０１６１】図５６は、本実施形態で印刷されるプリントＪＯＢの内容と、利用者が指定したパラメータを表した図である。本実施形態を用いたシステムでは、図５６で表したプリントＪＯＢの内容と、設定パラメータをあわせてプリントＪＯＢと呼んでいる。本実施形態では、印刷時間とトナー使用量をシュミレートする為に、プリントＪＯＢの印刷量を文字数換算で500文字として説明している。また、利用者はすべてのパラメータを設定したが、その中でも品質は最優先であると指定している。

【０１６２】図５５において、プリントＪＯＢ自動変更部518が起動されると、まずステップS550で、シュミレートの準備において、印刷時間やトナー使用量を決定する要因を初期化する。例えば、図５３の表に定義したように、プリンタＡ及びプリンタＢの最低品質（＝1）の場合のそれぞれの1文字あたりの印刷時間は平均100mステップSと200mステップSであり、1文字あたりのトナー使用量は平均100mgと200mgである。

【０１６３】続いて、ステップS551で、品質決定変数を品質最高値（例えば５）で初期化し、ステップS552で印刷時間をシュミレートする。例えば、プリンタA521とプリンタB522は印刷可能であり、プリントＪＯＢスケジューリング部520でスケジュールされているプリントＪＯＢが1つも無いとすれば、すぐに印刷を開始することができ、待ち時間は不要である。よって、印刷対象のプリントＪＯＢに500文字含まれているとした場合、プリンタA521では250秒かかり、プリンタB522では500秒かかるとシュミレートされる。

【０１６４】すると、ステップS553では、図５６の指定パラメータで指定された緊急性１分以内を満たすことができないので、ステップS556で、品質決定変数を1つ減らす。ステップS557で、図５６の指定パラメータの品質の指定を満たすので、再びステップS552の印刷時間のシュミレートに処理が戻される。これらの処理が繰り返された結果、利用者が指定した品質（＝３）になっても、印刷時間はプリンタA521で150秒であり、緊急性を満たすことができない。そこで、ステップS556で、品質決定変数を１減らすと、ステップS557で、利用者が指定した品質を満たすことができなくなる為、ステップS558へ進み、品質が最優先の指定パラメータかどうかチェックされ、最優先の場合、ステップS560で、指定された品質でプリントＪＯＢを変更し、正常終了する。

【０１６５】ここで、もし緊急性が最優先だったとすると、品質が最低品質の１になって初めて印刷時間がプリンタAで50秒となり、緊急性を満たすので、品質を品質決定変数の値（＝１）に設定し、正常終了する。

【０１６６】〔実施形態１９〕図５７は、本実施形態の装置を用いたシステムにおける、プリントＪＯＢの流れ、及びその他の情報の流れを示した図である。なお、図中の太い矢印はプリントＪＯＢの流れを表し、点線の矢印はその他の情報の流れを表している。

【０１６７】ただし、本実施形態で述べているプリントＪＯＢとは、印刷対象となっている文書、及び印刷枚数、印刷品質、印刷サイズなどの印刷時に参照されるパラメータ類を含めたものである。また、その他の情報には、各プリンタが持っている印刷中、正常、用紙無し等のステータスや、プリントＪＯＢスケジューリングが持っているプリントＪＯＢのスケジュールがある。

【０１６８】図５７において、クライアントマシン510では、プリントＪＯＢ作成部512でプリントＪＯＢを作成し、プリントＪＯＢ記憶部513にいったん記憶した後、プリントＪＯＢ送信部514により、プリントＪＯＢを作成したクライアントマシン510から、プリンタを管理するサーバマシン511に送信される。

【０１６９】サーバマシン511では、送られてきたプリントＪＯＢをプリントＪＯＢ受信部516により受け取り、プリントＪＯＢ解釈部571に渡す。プリントＪＯＢ解釈部571では、受け取ったプリントＪＯＢに含まれるユーザからの指示を解釈し、システムが処理可能なパラメータ等の情報に変換する。プリントＪＯＢのパラメータ類が未設定の場合はプリントＪＯＢ自動設定部517に渡し、すでに設定されている場合はプリントＪＯＢ自動変更部518に渡す。

【０１７０】プリントＪＯＢ自動設定部517では、プリントＪＯＢから取得される緊急性、経済性、品質などを考慮しながら、未設定の印刷パラメータを設定する。一方、プリントＪＯＢ自動変更部518では、同様な処理をすでに設定されているパラメータを変更することでも実現する。このようにして、設定または変更されたプリントＪＯＢは、プリントＪＯＢスケジューリング部520が持っているプリントＪＯＢのスケジュールに登録され、そこから順次プリントＪＯＢ送信部519へ読み出されて、または直接プリントＪＯＢ送信部に渡り、印刷される。

【０１７１】ここで、プリントＪＯＢ自動設定部及びプリントＪＯＢ自動変更部518には、プリンタ状況認識部515を介して取得された印刷中、正常、用紙無し等の使用可能なプリンタのステータスが渡り、プリントＪＯＢの設定または変更において利用される。また、同様にプリントＪＯＢスケジューリング部520が持っているプリントＪＯＢの印刷スケジュールも渡り、利用される。

【０１７２】また、図５７に表してあるように、プリントＪＯＢは異なる経路で流れることも想定される。例えば、プリントＪＯＢを作成したマシンと、プリンタを管理しているマシンが同じ場合には、プリントＪＯＢ送信部514を通らないこともありえる。

【０１７３】本実施形態では、図５８に示すように、プリントＪＯＢのパラメータの設定を、自然言語を利用してあいまいに設定している。図１３０は、自然言語による入力文字列に対応して、パラメータ設定におけるその文字列の表わす意味と、その意味を完成させるために必要な要求項目とを示した図である。プリントＪＯＢ解釈部571では、プリントＪＯＢ設定パラメータとして渡された自然言語による指示を、図１３０に示した自然言語による入力文字列に対応した意味と、意味を完成させるために必要な要求項目とを参照して、次のように解釈する。

【０１７４】入力された自然言語中の文字列「印刷」から、この文字列の意味するユーザの目的となるアクションは、〔印刷〕である。更に、そこから要求される項

目、〔対象〕は同時に入力されたプリントＪＯＢの内容そのものであり、〔品質〕及び〔枚数〕は入力された自然言語中の解釈されていない部分で指定されているはずだと、予想される。そこで、文字列「取引先用１枚、メンバー用５枚」を解釈すると、高品位の〔品質〕で〔枚数〕１枚を印刷し、自由な〔品質〕で〔枚数〕５枚を印刷するように指定されていることが理解される。

【０１７５】これ以降の、プリントＪＯＢ自動設定部517、及びプリントＪＯＢ自動変更部518の処理は、実施形態１７及び１８と同様である。

【０１７６】〔実施形態２０〕本実施形態では、図５９に示すように、プリントＪＯＢのパラメータの設定を、プリントＪＯＢの内容である文書自体に記載された配布先と枚数に基づいて行っている。プリントＪＯＢ解釈部571では、プリントＪＯＢの内容を解釈して、次のように動作する。アクションは、印刷である。「取引先用」は、高品位と解釈し、枚数は１枚とする。「ABCプロジェクト」は、「メンバー用」であり、品位は自由と解釈して、枚数は５枚とする（利用者はABCプロジェクトの一員であるという情報は事前に持っている。）。

【０１７７】これ以降の、プリントＪＯＢ自動設定部517、及びプリントＪＯＢ自動変更部518以降の処理は、実施形態１７及び１８と同様である。

【０１７８】〔実施形態２１〕図６０は、本実施形態の装置を用いたシステムにおける、プリントＪＯＢの流れ、及びその他の情報の流れを示した図である。なお、図中の太い矢印はプリントＪＯＢの流れを表し、点線の矢印はその他の情報の流れを表している。

【０１７９】ただし、本実施形態で述べているプリントＪＯＢとは、印刷対象となっている文書、及び印刷枚数、印刷品質、印刷サイズなどの印刷時に参照されるパラメータ類を含めたものである。また、その他の情報には、各プリンタが持っている印刷中、正常、用紙無し等のステータスや、プリントＪＯＢスケジューリング部520が持っているプリントＪＯＢのスケジュールがある。

【０１８０】図６０において、クライアントマシン510では、プリントＪＯＢ作成部512でプリントＪＯＢを作成し、プリントＪＯＢ記憶部513にいったん記憶した後、プリントＪＯＢ送信部514により、プリントＪＯＢを作成したクライアントマシン510から、プリンタを管理するサーバマシン511に送信される。

【０１８１】サーバマシン511では、送られてきたプリントＪＯＢをプリントＪＯＢ受信部516により受け取り、プリントＪＯＢ解釈部571に渡す。プリントＪＯＢ解釈部571では、受け取ったプリントＪＯＢに含まれるユーザからの指示を解釈し、システムが処理可能なパラメータ等の情報に変換する。プリントＪＯＢのパラメータ類が未設定の場合はプリントＪＯＢ自動設定部517に渡し、すでに設定されている場合はプリントＪＯＢ自動変更部518に渡す。また、プリントＪＯＢシュミレーション部601では、プリントＪＯＢで指定された設定での印刷をシュミレートし、印刷時間及びトナー使用量を求める。

【０１８２】プリントＪＯＢ自動設定部517では、プリントＪＯＢから取得される緊急性、経済性、品質などを考慮しながら、未設定の印刷パラメータを設定する。一方、プリントＪＯＢ自動変更部518では、同様な処理をすでに設定されているパラメータを変更することでも実現する。このようにして、設定または変更されたプリントＪＯＢは、プリントＪＯＢスケジューリング部520が持っているプリントＪＯＢのスケジュールに登録され、そこから順次プリントＪＯＢ送信部519へ読み出されて、または直接プリントＪＯＢ送信部519に渡り、印刷される。

【０１８３】ここで、プリントＪＯＢ自動設定部517及びプリントＪＯＢ自動変更部518には、プリンタ状況認識部515を介して取得された印刷中、正常、用紙無し等の使用可能なプリンタのステータスが渡り、プリントＪＯＢの設定または変更において利用される。また、同様にプリントＪＯＢスケジューリング部520が持っているプリントＪＯＢの印刷スケジュールも渡り、利用される。

【０１８４】また、図６０に表してあるように、プリントＪＯＢは異なる経路で流れることも想定される。例えば、プリントＪＯＢを作成したマシンと、プリンタを管理しているマシンが同じ場合には、プリントＪＯＢ送信部514を通らないこともある。

【０１８５】図６１は、プリントＪＯＢシュミレーション部601による処理のフローチャートである。プリントＪＯＢシュミレーション部601では、まずステップS611で、シュミレートの準備として、印刷時間やトナー使用量を決定する要因を初期化する。ステップS612で、プリントＪＯＢで指定された設定での印刷時間をシュミレートし、ステップS613で、プリントＪＯＢで指定された設定でのトナー使用量をシュミレートして、印刷時間及びトナー使用量を求める。

【０１８６】具体的な方法は、実施形態１７及び１８で説明したものと同様である。

【０１８７】〔実施形態２２〕本実施形態では、プリンタに複数の出力トレイを設け、利用者に応じて出力するトレイを選択する。

【０１８８】図６２は、本実施形態のプリンタシステムの処理手順のフローチャートである。プリンタシステムはプリントＪＯＢを受信すると、複数のプリントＪＯＢを同時に受け取った場合の対応などの処理を行った後、図６２の処理を起動する。

【０１８９】図６３に、本実施形態のプリンタシステムのプリンタの外観図を示す。同図に示すように、このプリンタ631、632は、出力トレイを複数持ち、プリンタ631では、それぞれの出力トレイにそのトレイ上の文書が

誰の文書であるかを表示する画面を持ち、プリンタ632では、共通画面にどの出力トレイに誰の文書があるかを表示する。また、それぞれの出力トレイ毎にあらかじめ利用者を設定しておけば、利用者専用の出力トレイになり、特に設定しておかなければそれぞれの出力トレイの利用者は必要に応じて変化することになる。

【０１９０】本システムにより、文書の到着を知らせる、印刷の終了を知らせる、印刷済み文書の取り忘れを知らせる（センサーがついている）などの機能が実現される。以上の処理の流れを説明する。

【０１９１】図６２において、ステップS621で、プリントＪＯＢに含まれる情報から、送付先情報を取得する。送付先情報は、実施形態２９で説明するようにプリントＪＯＢの内容中に記入された指定を解釈することで取得するか、Ｅｍａｉｌのように最初からプリントＪＯＢの内容とは別に設定された情報から取得される。この時、従来技術の使用例のように、通常のパソコンの出力デバイスとしてプリンタを使用する場合には、普通、送付先は指定されていないが、本実施形態を用いたシステムのように、ＦＡＸやＥｍａｉｌの代りのようにして使用する場合には、逆に送付先が指定されているのが普通である。ステップS622で、送付先が指定されているかどうかチェックする。ステップS623で、送付先の人に文書が届いたことを通知する。ステップS624で、プリントＪＯＢに含まれる情報から、送付元情報を取得する。送付元情報は、実施形態２９で説明するようにプリントＪＯＢの内容中に記入された指定を解釈することで取得するか、Ｅｍａｉｌのように最初からプリントＪＯＢの内容とは別に設定された情報から取得される。この時、従来のように、通常のパソコンの出力デバイスとしてプリンタを使用する場合には、普通、送付元は本システムの管理範囲にあるが、本実施形態を用いたシステムのように、ＦＡＸの代りのようにして使用する場合には、逆に送付元は管理範囲には無いのが普通である。ステップS625で、送付元が管理範囲にあるかどうかチェックする。ステップS626で、送付先が指定されている場合には送付先に対応して、出力トレイを選択する。送付先が指定されておらず、送付元だけが指定されている場合には送付元に対応して、出力トレイを選択する。ステップS627で、図６３の(a)のように、対応する出力トレイに、送付先または送付元の情報を表示する。または、図６３の(b)のように、共通表示画面に、送付先または送付元の情報と出力トレイの場所を表示する。この時、それぞれの出力トレイ毎にあらかじめ利用者を設定してあれば、利用者専用の出力トレイになり、特に設定しておかなければそれぞれの出力トレイの利用者は必要に応じて変化することになる。

【０１９２】ステップS628で、印刷を実行する。ステップS629で、印刷が終了し、送付元が管理範囲にあるかチェックする。ステップS630で、送付元に印刷が終了したことを通知する。ステップS631で、一定時間文書が残っていて送付元が管理範囲にあるかチェックする。ステップS632で、送付元に印刷済み文書が長い間残っていることを通知する。

【０１９３】〔実施形態２３〕本実施形態では、時間に関する情報を取り扱う。図６５は、本実施形態のシステムの機能構成を示す図である。処理部650は、理解部652、プランニング部653、実行部654、応答部655、知識ベース656を備え、データベース651と接続している。

【０１９４】図６４は、本実施形態の全体的な処理の流れであり、図６５の機能構成における処理手順をフローチャート化したものである。

【０１９５】ステップS640で、外部からの入力があるかを調べ、あれば、理解部652により、知識ベース656を参照して、ステップS641で、入力された文章を単語やセンテンス単位で解析し、更にステップS643で、入力内容の目的を解析し、理解する。ステップS644で、目的の理解に必要な情報が不足していないかを判断し、不足があれば、ステップS645でユーザに対して問い合わせを行い、ユーザからの回答を知識ベース656に学習してステップS643に戻る。不足がなければ、ステップS646に進む。また、ステップS640で入力がなければ、ステップS642で、実行すべき仕事を見つけ出して、ステップS646に進む。

【０１９６】ステップS646では、プランニング部653により、目的を達成するためのプランニングを行なう。ステップS647では、プランニングのために必要な情報が不足していないかを判断し、不足があれば、ステップS648でユーザに対して問い合わせを行い、ユーザからの回答を知識ベース656に学習してステップS646に戻る。不足がなければ、ステップS649で、実行部654によりプランを実行する。この時、実行部654は、必要に応じて、データベース651にアクセスしたり、他のアプリケーションと交信したりする。そして、応答部655により、ステップS650で、レスポンスの実行をすべきかを判定し、する場合は、その内容を決定する。更に、ステップS651で、決定された内容に対応するレスポンスを作成してユーザに応答する。

【０１９７】理解部652は、外部から入力された情報、例えばキーボード入力、音声入力、Email、FAX、ニュース情報などに対して、必要なら認識を行なった上で、内容の解析を行ない、文章中にある言葉から時間的な概念を解析し、時間に関わりのある文章の内容を理解するものである。

【０１９８】図６７は、電子メールからスケジュール情報を抽出する例を示す図である。上述の処理は、具体的には図６７にあるように、Emailで受取った文書の内容を解析し、「２月２２日」「１３時３０分」「１５：００」という時間的概念を見つけ出して解析し、この概念に関わりのある文章「２月２２日の１３時３０分から１５：００までＢ会議室で、特許システム説明会を予定し

ています。」を理解することにより、時間に関連する行動をスケジュールへと対応づけることが可能となる。

【０１９９】また、解析された時間的概念と現在時刻とを比較し、未来の時刻であれば、その行動をスケジュールに登録し、過去の時刻に関する記述であれば、スケジュールに登録せずに破棄する、あるいは過去の出来事の記録として、個人データベースなど、スケジュール以外の種類の情報として登録する。

【０２００】また、理解部652は、外部から入力された情報、例えばキーボード入力、音声入力、Email、FAX、ニュース情報などの内容の解析を行ない、文章中にある言葉の中にシステムがまだ知らない言葉（単語、概念など）や実行したことがないプランなどを発見したときには、その言葉やプランに緊急性がない場合は、その言葉やプランに関わる情報を順次見つけていくことで学習を行なっていき、知識ベース656に知識として貯える。

【０２０１】具体的には、例えば、ＸＹＺという知らない言葉が出てきた時にＸＹＺという何かが存在することを記憶しておき、次に「ＸＹＺは非常においしい」「ＸＹＺは固い」などといった文章を解析することで、ＸＹＺは固くておいしい食べ物である。と学習する。

【０２０２】プランについても、初めてのプランを指示された場合に、その時の状況から、例えば、ユーザが不在時のプランと理解すれば、ユーザ不在時のプランの立てかたの例として学習を行なうものである。

【０２０３】更に、システムが行なった行動やプランについて、例えばユーザに関わる情報をニュースなどから取得した時に、その都度ユーザに対して報告を行なっているシステムに対して、ユーザが報告を受けた際に、「次からはこの情報の報告はしなくていいよ。」などといった自然言語でシステムに指示を出すことにより、システムはその情報の報告を行なわないように学習をすることもできる。

【０２０４】以上のように、このシステムでは、理解部652で、外部から入力された情報の内容の解析を行ない、目的を解析し、プランニング部653で、目的を達成するためにシステムが行なわなければならない行動のプランを立てる。そして、実行部654で、処理の実行を行なうものである。また、応答部655により、実行した処理についてユーザに通知を行なう。

【０２０５】例えば、図６７にあるようなEmailを受けた場合に、差出人の情報から、個人データベースに未登録の相手からのメールであると理解した場合には、メールからその人に関する情報を抽出し、データベース651の個人データベースに登録する。更に、それ以外に個人データベースに未登録の人物に関する情報がある場合にも、個人データベースに登録するようにしてもよい。

【０２０６】またメールが説明会の案内であることを理解することにより、データベース651のユーザのスケジュールにアクセスし、既存のスケジュールデータとの時間のマッチングを行なう。新規スケジュールデータに既存のスケジュールデータとの衝突などの問題がなければ、このデータをスケジュールを追加登録するが、図６９で示すように、問題を発見した場合には、送信元に対する返事およびユーザに対する報告を作成する。

【０２０７】このように、本システムは、受取った情報から内容を理解することにより、システムが行なうべきレスポンスを状況により作り出して実行するものである。

【０２０８】なお、上記説明では、Emailを送ってきた相手に対して、システムがユーザに確認せずに返事を作成し、返送するという処理を行なったが、これは文書中に「都合の悪い方は、至急ご連絡下さい。」という文章があり、これを解析した結果から、応答の緊急度が高いと判断したために行なった行動である。ここで、開催予定がかなり先の日時であったり、任意参加などの会合で、応答の緊急度が低いと判断された場合には、応答に先立ってユーザに確認を行なうなど、緊急度に応じて行なう行動を決定するものである。

【０２０９】また、自然言語によるユーザからの指示と同様に、ユーザからの自然言語入力に対して、スケジュールや個人データベース等にアクセスして応答することが可能である。

【０２１０】例えば、「だれそれの電話番号は何番？」と自然言語で質問することにより、個人データベースのアクセスを行なったり、「１６日の会議は何処である？」と自然言語で質問を受けることによりスケジュールにアクセスし、ユーザに返事をすることが可能である。

【０２１１】図６６は、本実施形態の全体的な処理を行なうシステムと外部との入出力の種類を表した図である。

【０２１２】入力としては、キーボードから入力したり、電子メールとして受信した自然言語情報、あるいはスキャナから画像として入力される文書や画像、マイクなどから入力される音声、カメラから入力される画像などが扱える。スキャナにより読み取られた文書には文字認識処理を施し、音声には音声認識処理を施すことにより、自然言語の入力情報を得ることができる。

【０２１３】入力において、入力無し（Idle）は、図６４のステップS642で示したように、外部からの入力が何もない場合にシステム自らが実行するべき仕事を探して、入力とするものである。例えば、与えられた仕事が無いアイドル状態の時に、ニュースをアクセスし、ユーザに関わりのある情報を自ら取りに行き、入力情報とする。

【０２１４】また、出力としては、スケジュールなどのデータベースへの登録や、ファイル記憶装置へのファイリング、またはデータの削除。更には、ユーザへの通知や送信元への返答などがある。出力で重要なことは、システムの理解の範囲では処理を行なうことができないと

いう判断をすることができ、できない旨の応答をするなど、処理ができない場合に他のアクションを行なうことが可能な点である。

【０２１５】また、入出力の相手としては、ユーザや外部の装置、あるいはシステム内部の他の処理部あるいは別のアプリケーションなどがある。

【０２１６】また、入ってきた文書を解析して、人に関する情報及び時間に関する情報をデータ抽出して、個人情報データベースやスケジュールデータに格納すると共に、期待されているアクションを類推するのに必要な情報も抽出して、プランニングで利用される。

【０２１７】図６７の例では、入ってきた Email 文書を解析した結果、人に関する記述として、

To: toshima@abc.canon.co.jp,
rohra@abc.canon.co.jp,
kazuyo@abc.canon.co.jp
From: ichiro@abc.canon.co.jp

システム知財推進課の鈴木です。
鈴木（ichiro@abc.canon.co.jp）
044-549-6312（内線　620-5151）
Canon（株）　知的財産本部システム知財推進課

が存在しており、このうちメールアドレスが”kazuyo@abc.canon.co.jp”である人物が個人データベースに登録済みで、他の人物は未登録だとすると、そこから図６７のように、PERSON1,2,3の情報が抽出され、データベース651に登録される。

【０２１８】一方、時間に関する情報の記述として、「2月22日の13時30分から15:00までB会議室で、特許システム説明会を予定しています。」が存在するので、そこからEVENT1の情報が抽出される。

【０２１９】さらに、期待されるアクションを類推するのに利用される記述として、「都合の悪い方は、至急ご連絡下さい。」が存在するので、図７０以降で説明する処理で利用される。

【０２２０】図６８は、図６７および図６９の処理を実行するための処理の流れを、図６４のフローチャートを元に必要な部分を抜き出し、実行処理ステップS649をより具体的にあらわしたフローチャートである。

【０２２１】以下に具体的に図６７，６９の流れに合わせて説明する。

【０２２２】ステップS680で、Emailの入力があると、ステップS681で、入力されたEmail文書を単語やセンテンス毎に解析する。ステップS683で、シグネチャおよびヘッダから、「人の情報がある」、「説明会というイベントがある」ということを理解する。更に、「不都合の時に返事が必要である」ということを理解する。

【０２２３】ステップS684で、人の情報を抽出し、データベースに登録するプラン、及び説明会イベントをスケジュールに登録するプランをたてる。ステップS685で、

実行プランは存在する。ステップS686で、問題がないので、ステップS688へ処理を渡す。ステップS688で、人の情報を抽出しデータベースに登録し、ステップS685に戻る。

【０２２４】図６７の場合、ステップS685で、説明会イベントをスケジュールに登録するという実行プランが存在する。ステップS686で、このイベントは問題無くスケジュールに登録できるのでステップS688へ処理を渡す。ステップS688で、スケジュールの登録を行なう。ステップS685に戻ると、実行プランはなく、ステップS689で通知文もないので、処理を終了する。

【０２２５】図６９の場合、ステップS685で、説明会イベントをスケジュールに登録するという実行プランが存在する。ステップS686で、スケジュールの衝突を発見する。プランの実行には問題があるので、ステップS687で、都合が悪いので返事を送り、ユーザへ報告するようにプランを立て直す。ステップS685で、返事を書いて送信するプランが存在する。ステップS686で、プランの実行に問題は無いので、ステップS688で、都合が悪い旨の文書を作成し、送信元の相手にリプライ文書を送信する。ステップS685で、ユーザ通知用の文書作成プランが存在する。ステップS686で実行に問題は無く、ステップS688で、Emailの内容およびスケジュール衝突により、再考をお願いする返事を出したことをユーザに通知する文書を作成する。ステップS685で、実行プランはなく、ステップS689で、通知文があるので適宜ユーザに通知して、処理を終了する。

【０２２６】図６９の例では、データ抽出されたスケジュール情報 EVENT1 と、以前から予定されていたスケジュール EVENT2を比較した結果、予定が重なっていることが分かる。更に、図６９の例で抽出した情報によれば、都合が悪い場合は連絡しなければならないこともわかる。そこで、本実施形態を用いたシステムでは、手紙作成の知識を利用して、予定が重なっている為会議に出席できないという旨を伝える手紙を作成し、自動的に返事を送信する。

【０２２７】更に、本実施形態を用いたシステムが自動的に返事を出したことを、本実施形態を用いたシステムの利用者に通知する。

【０２２８】〔実施形態２４〕図７０は、利用者が音声により本実施形態のシステムに質問した場合の例を示す図である。

【０２２９】利用者が「明日の会議はどこでやるんだっけ？」と音声で質問すると、システムは利用者のスケジュール情報を参照して、会議の場所を答えることができる。さらに、利用者が会議が行われる場所への行き方がわからない場合、「下丸子のどこにあるの？」と質問すると、それに対してデータベースを参照して、更に利用者にどのように説明すればわかりやすくなるかをプランニングした上で、説明ストーリを作成し、グラフィカル

なイメージや音声を交えながら説明を実行する。

【０２３０】図７１は、図７０の処理の流れを図６４の基本フローチャートに基づいて表わしたフローチャートである。ここでは、外部からの入力が質問となっている。

【０２３１】１回目の質問に対する処理を説明する。ステップS710で、外部からの音声入力（明日の会議はどこでやるんだっけ？）が行われると、ステップS711で、入力文を解析する。ステップS712で、明日の会議に対する質問であり、ユーザの目的は、その場所を知ることであることを理解する。ステップS713で、質問に答えるため、以下のプランニングを行なう。① 明日のスケジュールを取り出す。② スケジュールに登録された場所を取得する。③ 取得した場所を通知するための文書作成を行なう。

【０２３２】ステップS714で、この場合は情報の不足はないのでステップS716に処理を渡すが、スケジュールに複数の会議が存在した場合には、どの会議かがわからないため、ステップS715でユーザに問い合わせて、再度プランを立て直すことを実行することになる。ステップS716で、ステップS713で立てたプランを実行し、ユーザへの返事の文書を作成する。ステップS717で、ユーザに通知すべき文書が存在するので返事を行なうことを決定する。この時入力が音声であったことを理解し、返事も音声で行なうことも同時に決定する。ステップS718で、音声データに変換した文書をユーザに通知する。

【０２３３】ここで、一旦処理は終了するが、続けてユーザからの質問が入力される。２回目の質問に対する処理を説明する。

【０２３４】ステップS710で、外部からの音声入力（下丸子のどこにあるの？）が行われると、ステップS711で、入力文を解析する。ステップS712で、１回目の質問の継続質問であることを理解し、回答した名称の具体的な場所を尋ねる質問であることを理解する。

【０２３５】ステップS713で、質問に答えるために、以下のプランニングを行なう。① 文書では説明困難であることをプラン、② 画像を順に流して説明することをプラン、③ 画像データベースと場所のデータベースから必要な画像を取得するプラン、④ 画像に合わせた文書を作成するプラン。

【０２３６】ステップS714では、情報の不足はない。ステップS716では、ステップS713で立てたプランを順次実行し、画像に合わせたユーザへの返事の文書を作成する。ステップS717で、ユーザに通知するべき文書が存在するので、返事を行なうことを決定する。この時、入力が音声であったことを理解し、画像をモニターに表示しながら、説明を音声で行なうことも同時に決定する。ステップS718で、ユーザに通知する。以上で、図７０の一連の処理の流れは終了する。

【０２３７】〔実施形態２５〕図７２の例は、予定が重なった場合に、２つのスケジュールの優先度を評価して、どうすべきかをプランニングした上で利用者に提案を行う。

【０２３８】つまり、この例の場合には、一方の予定が他方よりもより重要な場合、比較的重要でない方の予定をキャンセルするように提案している。

【０２３９】それに対し、利用者はキャンセルを提案された予定について、代理を送ることが可能だという知識を持っている場合、そのようにシステムに答えることで、システムは、それにあわせたアクションを更に行うことができる。また、この時、代理を送るというプランについて学習することもできる。

【０２４０】図７２は、図６８のフローチャートで説明したステップS686で、スケジュールの衝突を発見した場合の図６４のステップS646でのプランの立てかたの他の例を組み合わせたものである。

【０２４１】図６８では、不都合の返事を無条件に相手に送信する処理として説明したが、ここではステップS646のリプランニングの処理方法として、複数のリプライニングを用いた処理を説明する。

【０２４２】図７３は、スケジュール衝突時のリプライニングとして、文書の内容から優先度を評価してユーザへ提案するための処理のフローチャートである。この処理を以下で説明する。

【０２４３】上記で述べたスケジュールの優先度は、スケジュール毎にユーザがあらかじめ設定しておいた情報や、スケジュールに含まれるイベントへの出席者や、スケジュールの目的や、受信した文書内容から解析される結果などから総合的に決定される。ここで、出席者から決定される優先度は、ユーザがあらかじめ出席者となるような人物に対して設定しておいても良い。

【０２４４】また、スケジュールの目的から決定される優先度は、ユーザがあらかじめ設定しておいても良いし、過去の操作から学習したユーザが興味を持っている目的や分野との、共通性を考慮することで決定されるようにしてもよい。つまり、ユーザがコンピュータ関連の仕事に従事している場合、不動産関連のイベントよりは、コンピュータ関連のイベントのスケジュールの方が優先される。もちろん、ユーザが家の購入を検討しており、そのことがユーザに関する情報として記憶されているのであれば、不動産関連のイベントのスケジュールの方が優先されることもありえる。

【０２４５】一方、文書内容の解析結果から決定される優先度としては、例えば「必ず出席して下さい」という記述の文書と、「できれば出席して下さい」という記述の文書のスケジュールが衝突した場合、前者の方が優先度が高いと判断されるなどとすることができる。

【０２４６】図７３において、ステップS730で、既存のスケジュール情報を取得する。ステップS731で、新規のスケジュール情報の優先度を評価する。ステップS732

で、両情報の優先度の比較を行なう。ステップS733で、比較結果からユーザに問い合わせるための通知文書（例えば、衝突する２つのスケジュールを示し、優先度の低い方について、キャンセルしてよいかなどをたずねる）を作成するプランを立てる。ステップS734で、作成した通知文をユーザに伝える。ステップS735で、プランの問い合わせに対するユーザからの返事を得る。ここで、ユーザの返事を実行するために、ユーザの返事を入力として再度プランニングするために、図６８の返事リプランニングと同様の処理を行なう（図７４）。

【０２４７】図７４は、上述のリプランニングの処理のフローチャートである。

【０２４８】ステップS740で、図７３で最終的に得た返事を入力とする。ステップS741で、入力文書を解析する。ステップS742では、スケジュールの変更、初めての指示プランであることを理解する。

【０２４９】ステップS743では、以下のプランを立てる。(a)スケジュールを変更する。(b)代理の人に通知するための文書を作成する。(c)新しいプランを学習する。(d)ユーザに通知する文書を作成する。(e)思い出しスケジュールがあることを通知する。

【０２５０】ステップS744では、ステップS743で立てたプランを実行する。(a)スケジュールを変更する。(b)代理の人に通知するための文書を作成し、通知する。(c)代理人を頼むというプランを学習する。(d)ユーザに通知するための文書を作成し、(e)思い出しスケジュールがあることを作成文書に付け加える。

【０２５１】ステップS745では、ユーザへの通知文をユーザへ伝える。以上で、図７２の処理を実行するための処理の説明を終了する。

【０２５２】〔実施形態２６〕図７５は、本実施形態のシステムの入出力も含めた全体イメージを表す図である。図７６は、図７５のシステム全体の処理の流れを表わしたフローチャートである。

【０２５３】Email、音声、キーボード入力、WWW、電話、ＦＡＸ、スキャナ、カメラ等各種入力機器から入力された情報は、すべて入力Management部751で解析され(ステップS760)、Core部752で、内容を理解し、適切な処理をプランニングした後(ステップS761)、出力Management部753により、出力メディアを決定し、出力内容や出力経路の準備をした後(ステップS762)、Email、音声、WWW、電話、ＦＡＸ、プリンタ、コピー機等各種出力機器から出力される。

【０２５４】図７７～７９は、図７６の全体フローチャートの各ステップであるステップS760(入力Management部751の処理)、ステップS761(Core部752の処理)、ステップS762(出力Management部753の処理)を具体的に表わしたフローチャートである。

【０２５５】図７７において、入力Management部751は、ステップS770で、新規入力を待つ。ステップS771で入力された情報を取得する。ステップS772では、取得した入力情報の解析処理を必要なら認識を行なった上で実行する。この時、入力Management部751は、種々のメディアから情報を受けつけることができ、各メディアに応じた方法で、認識や解析を行なう。

【０２５６】図７８において、Core部752は、図７７で解析された入力情報を受取り処理を行なう。

【０２５７】ステップS780で、解析結果から入力情報の目的を解析、理解する。ステップS781では、入力情報の目的が自分（システム、ユーザ）とどのように関係しているか調べる。ステップS782で、目的に合わせて自分との関係から何を実行するべきかのプランニングを行なう。ステップS783では、ステップS782で作られたプランを実行する。

【０２５８】図７９において、出力Management部753は、図７８で実行した結果からレスポンスする必要があるかを決定し、必要があれば、レスポンスを作成して出力する。

【０２５９】ステップS790では、図７８で実行した結果の解析を行なう。ステップS791では、実行した結果に対するレスポンスがあるかを判定する。何もなければこのまま処理を終了する。レスポンスがある場合には、ステップS792で、外部からのレスポンスに対するレスポンスをどのようにするか決定する。ステップS793では、レスポンスを行なうメディアを決定する。ステップS794では決定したメディアに合わせたレスポンスの作成を行なう。ステップS795で作成したレスポンスをメディアに合わせて発行する。ステップS796で、レスポンスを実際に物理的に出力する。以上が、図７５の全体イメージを表わす処理である。

【０２６０】例えば、ユーザに会議の開催を知らせるＥｍａｉｌが到着した場合、まず、入力Management部751により、図７７の手順で入力情報を解析する。この結果から、Core部752により、図７８の手順で、ユーザ及びシステムがどう対応すべきかをプランニングされ、処理される。その結果が、出力Management部753に渡され、図７９の手順で処理が行われ、レスポンスすべきとプランニングされていた場合、実際にレスポンスが行われる。

【０２６１】ここで、Ｅｍａｉｌで知らされた会議の内容やそれ以前のユーザのスケジュールの状況によっては、ステップs782で、ユーザに積極的に通知することが必要だとプランニングされるので、レスポンスが必要となる。よって、ステップs791でレスポンスありと判断される。ステップs792では、レスポンスする内容が決定される。例えば、スケジュールが衝突している場合、どちらかのスケジュールの選択を促したり、参加すべきかどうかわからない会議の場合、その判断を問い合せるなどのレスポンスする内容自体がここで決定される。続いて、ステップs793において、上記で決定されたレスポン

スの内容をもっとも効果的に伝えることができるメディアが、決定される。例えば、ユーザが外出先にいるならば、電話やＦＡＸ等の外出先のユーザにも通知することができるメディアが選択され、逆にパソコンなどを使用している最中ならば、さまざまな資料を効果的に表示することができるパソコン等のメディアが選択される。続いて、ステップs794、s795において、上記で決定された内容やメディアに合わせて、文書や画像が作成され、さらにメディアによっては自然言語音声に変換されるなどの方法によって、レスポンスが作成され、発行される。

【０２６２】図８０は、図７５の全体的流れをさらに詳しく、入力された情報からどのようにしてデータが抽出されるかを説明するためのフローチャートである。

【０２６３】本実施形態を用いたシステムでは、文書が入力された場合、まず、ステップS801で、文書のレイアウト、バーコードなどの種別判別用記号を参照して、文書のタイプを推測する。その結果、文書が手紙か、報告書か、特許公報かなどが推測できれば、ステップS803に進み、推測できなければ、ステップS810に進み、完全なＯＣＲを行なって文書タイプを確定する。

【０２６４】ステップS803では、ＯＣＲにより、推測された文書タイプが正しいかを確認するために、文書タイプを確認するのに特徴的なブロックをＯＣＲして解釈する（図８２参照）。その結果、ステップS804で、手紙の宛先や特許公報の特許番号などがわかり、文書タイプを確認する。この確認された文書タイプが推測した文書タイプと一致すれば、ステップS806に進み、一致しなければ、ステップS810に進む。例えば、用紙の上部分に帳票の種類を表す文字列が印刷されている帳票類であれば、その用紙の上部をＯＣＲすることで文書タイプ確定が容易である。

【０２６５】ステップS806では、上記確認された文書タイプの知識ベースを用いて、ＯＣＲにより特定ブロックを読み取り解釈し、ステップS807でその結果得られた情報と関係する情報が過去に存在したかどうかチェックをし、存在した場合ステップS808に進み、存在しなかった場合、ステップS810に進む。その結果、宛先や特許番号などがわかり、過去に送った手紙の返事であるかどうかなどが理解される。

【０２６６】ステップS808では、上記理解された状況を元に、重要となる本文の内容等から目的を判断し、ステップS809で実行する処理を決定する。

【０２６７】ステップS811では、上記で理解された目的から、その他のＯＣＲされていない範囲に解析範囲を広げて解析し、ステップS812以降で実際に処理を実行させる。その結果、必要ならばファイリングなどの処理が行われる。

【０２６８】上記処理により、内容を推測しながらＯＣＲを行うことができるので、従来のようにいきなり完全なＯＣＲを行うよりも、効率よく正確なＯＣＲ結果を得ることが可能になり、ＯＣＲ結果を元に行われる処理も正しく行えるようになる。

【０２６９】図８１は、データ抽出処理の対象となる手紙／faxの例を示す図である。

【０２７０】この例において、ステップS801で、文書のレイアウトから文書のタイプを推測する。その結果、DocTypel ＝手紙／fax.となる。

【０２７１】一方、ステップS803で、ＯＣＲにより、特定ブロックを読み取り、解釈する。（図８２参照）その結果、From, To, Dear Sirなどが得られ、ステップS804で、DocType2＝手紙／faxと確認される。

【０２７２】図８０のステップS803で説明した、ＯＣＲによる特定ブロック読み取りを具体的に説明する。図８２は、この処理を説明する図である。

【０２７３】本実施形態を用いたシステムでは、下記のようにスキャニングが実行される。

①解像度の低いプリスキャンにより、高速に読み込む。

②読み込まれた情報のフォームと、ＤＢ823に貯えてあるフォーム情報とを比較し、一致した場合フォーム以外に入力された情報または、フォーム毎に指定された領域(例えば、図８２のカード上の枠内の部分)の情報だけを高解像度で読み込む。

③上記で読み込まれた領域だけをＯＣＲの対象として解析し、処理を続行する。

【０２７４】更に、この例では、同じフォームのカードが複数枚存在していることを想定しているので、一定時間間隔で読み込もうとしている文書は、同じフォームの可能性が高いので、まず、同じフォームのものとして処理を行い、矛盾が発生して初めてフォームが異なるものとして再解析を行う。

【０２７５】これにより、処理速度の大幅な向上と、解析範囲を限定し、しかもフォームを特定することで解析ドメインを特定し、解析精度の大幅な向上が可能になる。

【０２７６】図８０のステップS808で説明した、内容等からの目的の判断を具体的に説明する。

【０２７７】本実施形態を用いたシステムでは、日付のデータを参照して、図８３の手順により、処理の判断が実行される。送り手が利用者の場合、下記の処理を実行する。

①日付が今日の場合、ＦＡＸで送信すると判断する。

②日付が昨日以前の場合、以前に同じ文書を送ったかどうか、同じ内容を見たことがあるか等をユーザに問い合せ、ファイリング、再送信、利用者の間違いかどうかを判断する。

③日付が明日以降の場合、日付に指定されている日まで保持するか、利用者の間違いかどうか問い合せる。

【０２７８】具体的には、図８１の文書を例にして、Datelを文書の日付、Date2を今日の日付とした時、

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① Date1 = 1996年11月25日 & Date2 = 1996年11月25日 － 文書送る
② Date1 = 1996年11月25日 & Date2 = 1997年７月２日 － ファイル
③ Date1 = 1995年11月25日 & Date2 = 1996年11月26日
中身日付 = 1996年12月18日、22日 － 間違い

【０２７９】図８３は、入力された文書から目的を解析する処理のフローチャートの一例である。文書が入力されると、ステップs830で送信者がユーザかどうか判定され、ユーザ以外の場合には入力された文書が受信した文書であると判断され、ステップs831で、それに対応してファイリングやデータ抽出等といった目的が洗い出され、終了する。

【０２８０】一方、送信者がユーザの場合には、入力された文書がどのような文書なのかを更に解析する為に、ステップs832以降に進む。ステップs833で文書の日付と今日の日付が比較され、日付が近い場合には、ステップs835で、以前にその文書を送信したかどうかがチェックされ、送信していない場合にはその目的は「文書の送信」だと決定される。また、以前に送信した文書の場合には、ステップs843で、それに対応してファイリングや再送信等の目的が洗い出される。

【０２８１】一方、文書の日付がかなり以前のものであった場合には、ステップs836に進み、送信したかどうかがチェックされ、送信した文書の場合、同じくステップs843に進む。送信していなかった場合には、ステップs837に進み、文書中の情報から他に日付が記載されていないかチェックされる。日付を見つけた場合には、同じくステップs843に進む。日付が無い場合には、目的として文書の送信が考えられるが、日付が間違えている可能性もあると判断される。

【０２８２】また、文書の日付が現在の日付よりかなり先のものである場合には、ステップs840で、文書中の情報から他に日付の記載があるかどうかチェックされ、ステップs841で日付を見つけた場合には、目的は「文書の送信」だと決定される。日付が無い場合には、ステップs839に進む。

【０２８３】〔実施形態２７〕図８４は、本実施形態を用いたシステムの構成例の１つを示す図である。この例では、システムは現状のＦＡＸのように動作する。

【０２８４】しかし、本実施形態のシステムによれば、利用者が送信先を指定することなしに、読み込まれた文書に付されたバーコードやカバーシートの情報から、文書の送信先が判断されて、適切な送信先へ送信することができる。

【０２８５】これにより、プリンタ、ＦＡＸ、Ｅｍａｉｌ、WWWに適切に情報が送られることになる。

【０２８６】〔実施形態２８〕図８５は、本実施形態を用いたシステムの構成例の１つを示す図である。この例では、システムは、机の上にあるあらゆる文書を処理してくれる、デスクソータの機能を実現する。

【０２８７】つまり、読み込まれた文書の内容に応じて、分類、ファイリング、スケジューリング、その他データ抽出、処理の自動実行が行われる。

【０２８８】〔実施形態２９〕図８６は、図８５で説明したシステムをさらに詳細に説明したものである。図８６に基づいて、図８７のフローチャートに従って、処理手順を具体的に説明する。

【０２８９】図８７は、本実施形態の処理手順を表わすフローチャートである。図８８、図８９は、この処理中に利用される知識を表わしたものであり、図８８は、一般知識ベースの知識を表わしたものである。図８９は、カバーページに特定された分野の知識ベースの知識をあらわしたものである。本実施形態では、図８８、図８９で定義された情報を参照して、入力された文書中に含まれる文字列と、図中の文字列の欄で定義された文字列とを比較し、一致した項目の概念と、その意味を更に特定するRoleと、後続する情報を規定するCondition又は、指示された処理Actionを取得し、解析を行う。

【０２９０】図８７において、ステップS870で、カバーページをスキャンしてＯＣＲ処理を実行する。ステップS871で、図８８の知識ベースを参照し、送信者、受信者の氏名、電話番号、FAX番号などの情報を抽出する。ステップS872で、抽出した情報をデータベースに登録する。例えば、図８６の例では受信した文書のカバーページに「To: Macrohard Corp.」という文字列が含まれている。そこで、図８８の文字列の欄に定義されている項目と比較すると、一致する項目「To」が発見され、そのRoleは受信会社名または氏名であるので、受信者の情報として「Macrohard Corp.」が抽出される。

【０２９１】ステップS873で、図８９のカバーページに特定された分野の知識ベースから、通知方法や手段、ファイリング作業や場所などのアクションやＪＯＢを取り出す。例えば、図８６の例では受信した文書のカバーページに「File: MH/Contract」という文字列が含まれている。そこで、図８９の文字列の欄に定義されている項目と比較すると、一致する項目「File」が発見され、指示されたアクションとして、ファイリングすることが取り出され、ファイリング場所の情報として、文書中から「MH/Contract」が抽出される。

【０２９２】ここで、Date1 = 1996年11月25日 & Date2 = 1996年11月25日であるとすると、図８３につき説明したように、目的－文書送ると判断される。

【０２９３】ステップS874では、本処理の目的のためのアクションが存在するか確認する。ステップS875では、相手に文書を送信することが目的であるので送信するアクションを実行する。ステップS876で、カバーページの情報からファイリングの必要があるか判断する。ステッ

プS877で、図８６の例では必要があるので、指示された場所である「MH/Contract」にファイリングする。

【０２９４】ステップS878で、ステップS876と同様に、カバーページの情報から送信者に通知する必要があるか判断する。送信者に音声で通知するように指示されているため、ステップS879で、相手に文書を送信したことを音声で送信者に通知する。ステップS880で、その他のアクションがあるかを判断する。ステップS881では、キーワード指定があるので、ＡＢＣというキーワードでインデックスを作成する。

【０２９５】〔実施形態３０〕図９０は、過去に行われた履歴を、音声入力された自然言語による指示に基づいて参照して、処理を実行する例を示す図である。図９０を基に、図９１のフローチャートに従って、処理の説明を行なう。

【０２９６】図９１は、本実施形態の処理の流れを示すフローチャートである。ユーザから音声により、「Fax Contract again to John. Notify him by Phone.」という指示を受信すると、本システムは受信した自然言語による指示の目的を解析し、「Contractという文書をJohnにＦＡＸで再送信し、到着を電話で知らせる。」ということを理解する。そこで、具体的に文書Contractと、送信先Johnを特定して、処理を実行させる為に、図９１のフローを実行させる。

【０２９７】ステップs910で、再送信ということは以前に送信が行われているので、データベースから履歴情報を取得する。その結果、文書Contract及びJohnが履歴情報から特定される。ステップS911で、パーソナルデータベースから John の宛先を取得する。データベース中には、John SmithとJohn Bushという2人のJohnが存在しているので、本来であれば送信先を特定することはできないはずであるが、ステップs910で履歴情報を参照したことで、以前に文書Contractを送ったJohnとは、John Smithであると判明し、送信先が特定される。ステップS912で、ファイリングデータベースから「Contract」文書を取得する。ステップS913で、送信先である John に文書を送信する。ステップS914では、通知指示「Notify him by Phone」があるので通知の必要があると判断する。ステップS915では、図８９と同様、知識ベースのルールから、受信者に電話での通知をするように、送信先のＦＡＸ901に指示を行なう。ステップS916で、その外のアクションは指示されていないので処理を終了する。

【０２９８】更に、文書を受信したＦＡＸ901は、前述の通知指示にしたがって、JohnにMr.Doorsから文書を受信したことを、電話で通知する。なお、ＦＡＸ901が電話で通知することができない場合には、送信元で行なうようにしてもよい。

【０２９９】〔実施形態３１〕図９５は、解析された入力文書の内容から、利用者が何かを行うべきと判断し、実際に利用者に問い合せた後、必要な処理を自動実行した例のフローチャートである。図９２は、入力文書の例を示す図である。図９３は、システムとユーザとの会話の内容を表わした図である。図９４は、図９３の会話から判断してシステムが作成した出力文書である。

【０３００】図９５のフローチャートに基づいて、図９２の入力文書から図９４の出力文書を作成するまでの処理を説明する。

【０３０１】ステップS950で、図９２の入力文書を解析して、以下の目的を理解する。(a)John Smith さんが11月28日の3時に横浜に到着すること。(b) John Smith さんは日本語が苦手なこと。(c)駅に迎えに来て欲しいこと。

【０３０２】ステップS951で、理解した内容から、利用者が何かを行なうべきかを判断する。ここでは、駅に迎えに行かなければならないと判断するので、ステップS952に移る。ステップS952では、自分（システム）が代理で実行できるか判断する。ここでは、システムは自分で迎えに行くことはできないのでステップS953に移る。ステップS953で、利用者に問い合せる必要があるかどうか判断し、ステップS954へ進む。この例では、入力された文書の宛先から Aruna Rohra さん宛ての依頼であることを判断されるので、ステップS954に移る。

【０３０３】ステップS954で、利用者（Aruna Rohraさん）に問い合わせる為の作業を行ない、問い合わせを行なう。この例では、ステップs951で理解した結果から、利用者にJohnさんを迎えに行かなければならないが、どう対処したら良いかを利用者に問い合せている。ステップS955で、問い合わせた結果から次に何を行なうかを判断し、行動を起こす必要があるか否かを判断する。この例では、利用者が、田中さんに迎えに行くことを頼むように、指示しているので、その指示にしたがって行動を起こす。よって、ここでは田中さんに代わりにお願いできないかを頼む必要が出てきたので、行動を起こす必要があると判断する。ステップS956で、田中さんに代理をお願いするための文書作成および連絡を行なう。ここでは電子メール用の文書を作成し、送信する。この例では、Johnさんが28日に到着するという情報と、利用者の代りに迎えに行って欲しいという指示と、この依頼の元になったオリジナルの文書を添付するということから、文書を自動作成している。

【０３０４】以上で、入力文書から、利用者が実際に行動を起こさなければならない事柄(ここでは駅に迎えに行くということ)を実施するための処理の流れを説明した。

【０３０５】〔実施形態３２〕図９６は、リモコンによりシステムを操作する実施形態を示す図である。

【０３０６】本実施形態のシステムによれば、デバイスとリモコンが直接あるいは間接的にコミュニケーションすることで、お互いにお互いを特定することができる。それにより、①自動デバイス特定、②デバイスの能力を

デバイスから取得、③デバイス固有のＵＩ(ユーザ・インタフェース)、④音声による操作、⑤基本操作はすべてのデバイスに対して共通、⑥ユーザ固有のＵＩ、⑦状況に応じた自由度の高いＵＩといった機能が実現される。

【０３０７】つまり、①リモコンを操作対象機器に向けるだけで操作対象機器を自動的に認識し、②デバイス毎の情報をデバイス自体からＩｒＤＡや無線ＬＡＮを介して取得し、③取得されたデバイス毎の情報からデバイス固有のＵＩを実現し、④音声による操作を可能にする一方、⑤基本的な操作は同一のリモコンで操作可能とすることで共通基本操作を実現し、⑥ユーザの識別情報を参照することで、ユーザ毎に必要な情報をデータベースやアドレスブックから取得して、ユーザ固有のＵＩを実現するだけでなく、⑦状況に応じて最適なＵＩを実現する。

【０３０８】図９６では、リモコン960をＦＡＸ963に向けることで、ＦＡＸ963から機種識別情報を得て、この機種に対応するＵＩをアクティブとし、表示された「Fax to」に続けて、タッチペンで、「Fax to John」という文字列を入力してＦＡＸ963に指示することで、パソコン964内のアドレスブック965からJohnのFAX番号を読み出して、その番号に対して、ＦＡＸ963にセットされた文書あるいはパソコン964内のファイル上の指定された文書を送信する。この詳細については、後述する。

【０３０９】〔実施形態３３〕図９７は、ステータスモニタの例を示す図である。

【０３１０】本実施形態のシステムによれば、利用者が直接操作を行っている機械以外の情報を参照することができる。

【０３１１】それにより、①リモート ＆ ハンディ管理、②自動デバイス特定、③ステータスを見るための共通入出力、④携帯電話の機能を持つ、⑤音声操作、⑥赤外線入出力可能なすべてのデバイスに対応できるといった機能が実現される。つまり、①対象機器から離れた場所であっても必要な情報を取得可能になり、②リモコンを操作対象機器に向けるだけで操作対象機器を自動的に認識し、③基本的な操作は同一のリモコンで操作可能とすることで共通基本操作を実現し、④リモコンに携帯電話の機能を持たせることで操作性を向上し、⑤音声操作を可能にし、⑥一般的なプロトコルを用いることで赤外線入出力可能なすべてのデバイスに対応可能となる。

【０３１２】図９７では、ステータスモニタ970をプリンタ961、コピー機962、あるいはＦＡＸ963に向けて、タッチペンで、「Status」という文字列を入力して指示することで、ステータスモニタ970を向けたデバイスからステータス情報をステータスモニタ970に読み出して、ステータスモニタ970のユーザが各デバイスのステータスを確認することができる。また、例えば、パソコン964が、ステータスモニタ970からの命令が受信できない場所にある場合でも、このパソコン964とネットワークを介して通信可能なプリンタ961等に対して、パソコン964を指定してステータスを要求することにより、ネットワークとプリンタ961を介して、パソコン964からステータス情報をステータスモニタ970に読み出すこともできる。

【０３１３】〔実施形態３４〕図９８は、リモコン960が対象機種を認識し、対応するＵＩをリモコン960の内部から読み出して表示する例を示す図である。対象機種に向けていない状態でのリモコンには、図の中央のように、「操作したい機械に向けて下さい」というメッセージが表示されたデフォルト状態の画面となっている。

【０３１４】ここで、リモコンと対象機種との間のコミュニケーションの流れを説明する。なお、下記の説明で②及び③は必須のものではない。例えば、④で対象機種が常に一定間隔でリモコンに向けた信号を発しているようにすれば、同じ効果を実現できる。あるいは、対象機種または他の装置によって、リモコン960が対象機種に向けられていることを、リモコン960と対象機種との位置関係から検出するようにしてもよい。また、④で、リモコン960が、対象機種の装置形状を見て対象機種を識別したり、対象機種に付されたバーコードを読み取って対象機種を識別したりするようにしてもよい。つまり、図９８では必須の部分だけを図示している。

【０３１５】①利用者がリモコン960を対象機種に向ける。

②リモコン960から対象機種に対象機種識別信号要求信号を送るタイミングを決定する為に、利用者がリモコン960のタッチパネルなどに触れる。または、あらかじめ常に一定間隔で対象機種識別信号要求信号を送るように設定されている。

③リモコン960から対象機種識別信号要求信号を対象機種に送る。

④リモコン960からの対象機種識別信号要求信号の要求に従って、あるいはあらかじめ常に一定間隔で対象機種識別信号を送るように設定されていれば、その設定にしたがって、対象機種識別信号を送る。

⑤対象機種識別信号を受け取ったリモコン960は、信号が示す対象機種にあわせてＵＩを決定し、リモコン960内部で貯えている対応するＵＩを表示する。ここで、識別信号は機種毎としたが、機器毎とすることで、同機種でも機器毎に異なるＵＩを利用することもできる。

【０３１６】図９９は、リモコンが対象機種を認識し、対応するＵＩをリモコン960の内部から読み出して表示する例における、リモコン側の処理の例を示すフローチャートである。リモコン側の処理の流れを説明する。

【０３１７】ステップS991で、利用者の指示操作があるまで、待機する。ステップS992で、対象機種から対象機種識別信号を発信してもらう為の、対象機種識別信号要求信号を、赤外線等の方法で発信する。ステップS993

で、対象機種から対象機種識別信号が発信されるまで待機する。ステップS994で、受け取った対象機種識別信号に対応するＵＩを、リモコン960が参照可能な内部のメモリなどから取得し、表示する。

【０３１８】図１００は、リモコン960が対象機種を認識し、対応するＵＩをリモコン960の内部から読み出して表示する例における、対象機種側の処理の例を示すフローチャートである。対象機種側の処理の流れを説明する。

【０３１９】ステップS1001で、リモコン960からの要求信号があるまで待機する。ステップS1002で、対象機種識別信号を、赤外線通信等の方法で発信する。

【０３２０】〔実施形態３５〕図１０１は、リモコンが対象機種からＵＩを受け取り、表示する例を示す図である。対象機種に向けていない状態でのリモコン960には、図１０１の中央のようにデフォルト状態の画面が表示されている。

【０３２１】ここで、リモコンと対象機種との間のコミュニケーションの流れを説明する。

【０３２２】なお、下記の説明で②から③は必須のものではない。例えば、④で対象機種が常に一定間隔でリモコンに向けた信号を発しているようにすれば、同じ効果を実現できる。あるいは、対象機種または他の装置によって、リモコン960が対象機種に向けられていることを、リモコン960と対象機種との位置関係から検出するようにしてもよい。また、④で、リモコン960が、対象機種の装置形状を見て対象機種を識別したり、対象機種に付されたバーコードを読み取って対象機種を識別したりするようにしてもよい。つまり、図１０１では必須の部分だけを説明している。

【０３２３】①利用者がリモコン960を対象機種に向ける。
②リモコン960から対象機種にＵＩ要求信号を送るタイミングを決定する為に、利用者がリモコン960のタッチパネルなどに触れる。または、あらかじめ常に一定間隔でＵＩ要求信号を送るように設定されている。
③リモコン960からＵＩ要求信号を対象機種に送る。
④リモコン960からのＵＩ要求信号の要求に従って、ＵＩを送る。あるいはあらかじめ常に一定間隔でＵＩを送るように設定されていればその設定に従って、ＵＩを送る。
⑤ＵＩを受け取ったリモコン960は、ＵＩを表示する。

【０３２４】図１０２は、リモコン960が対象機種からＵＩを受け取り、表示する例における、リモコン側の処理の例を示すフローチャートである。リモコン側の処理の流れを説明する。

【０３２５】ステップS1021で、利用者の指示操作があるまで待機する。ステップS1022で、対象機種からＵＩを発信してもらう為の、ＵＩ要求信号を、赤外線通信等の方法で発信する。ステップS1023で、対象機種からＵＩが発信されるまで待機する。ステップS1024で、受け取ったＵＩを表示する。

【０３２６】図１０３は、リモコンが対象機種からＵＩを受け取り、表示する例における、対象機種側の処理の例を示すフローチャートである。対象機種側の処理の流れを説明する。

【０３２７】ステップS1031で、リモコン960からの要求信号があるまで待機する。ステップS1032で、ＵＩを、赤外線通信等の方法で発信する。

【０３２８】〔実施形態３６〕図１０４は、各デバイスのＵＩは無線ＬＡＮサーバ1041内にあり、リモコン960を対象機種であるコピー機962に向けて、ＵＩを要求すると、コピー機962からの依頼で、無線ＬＡＮサーバ1041からリモコン960に対してＵＩが送信され、表示される例を示す図である。

【０３２９】対象機種に向けていない状態でのリモコン960には、図１０４の中央のようにデフォルト状態の画面が表示されている。

【０３３０】ここで、リモコンと対象機種との間のコミュニケーションの流れを説明する。
①利用者がリモコン960を対象機種（ここでは、コピー機962とする）に向ける。
②リモコン960から対象機種にＵＩ要求信号を送るタイミングを決定する為に、利用者がリモコン960のタッチパネルなどに触れる。または、あらかじめ常に一定間隔でＵＩ要求信号を送るように設定されている。
③リモコン960自身を識別するためのリモコン識別情報（リモコンＡとする）と共にＵＩ要求信号を対象機種に送る。
④リモコンからリモコン識別情報とＵＩ要求信号を受け取った対象機種は、リモコン識別情報（リモコンA）と対象機種自身を識別する対象機種識別情報（コピー機）を、対象機種を管理しているサーバ1041に送り、ＵＩの送信を依頼する。
⑤サーバ1041はリモコン識別情報で示されるリモコン960に、対象機種識別情報で示される機種のＵＩを、無線ＬＡＮ等を介して発信する。
⑥発信された自分宛てのＵＩを受け取ったリモコン960は、ＵＩを表示する。

【０３３１】図１０５は、リモコンが対象機種からＵＩを直接受け取らず、無線ＬＡＮ等を介してＵＩを受け取り、表示する例におけるリモコン側の処理のフローチャートである。

【０３３２】リモコン側の処理の流れを説明する。ステップS1051で、利用者の指示操作があるまで待機する。ステップS1052で、対象機種に対して、ＵＩを発信してもらう為のＵＩ要求信号と、リモコン自身を識別するためのリモコン識別情報とを赤外線通信等の方法で発信する。ステップS1053で、どこからかＵＩが発信されるまで待機する。ステップS1054で、受け取ったＵＩを、表

示する。

【０３３３】図１０６は、リモコンが対象機種からＵＩを直接受け取らず、無線ＬＡＮ等を介してＵＩを受け取り、表示する例における、対象機種側の処理の例を示すフローチャートである。対象機種側の処理の流れを説明する。

【０３３４】ステップS1061で、リモコン960からの要求信号があるまで待機する。ステップS1062で、リモコンから受け取ったリモコン識別情報と、自分自身の対象機種識別情報をサーバ1041に送信し、ＵＩの送信を依頼する。

【０３３５】図１０７は、リモコンが対象機種からＵＩを直接受け取らず、無線ＬＡＮ等を介してＵＩを受け取り、表示する例における、サーバ側の処理の例を示すフローチャートである。サーバ側の処理の流れを説明する。

【０３３６】ステップS1071で、対象機種からのＵＩ送信要求信号があるまで待機する。ステップS1072で、対象機種から受け取ったリモコン識別情報が示すリモコン960に、対象機種識別情報が示す機種のＵＩを発信する。

【０３３７】〔実施形態３７〕図１０８は、各デバイスのＵＩは無線ＬＡＮサーバ1041内にあり、リモコン960aあるいは960bを対象機種であるＦＡＸ963に向けて、ＵＩを要求すると、ＦＡＸ963からの依頼で、無線ＬＡＮサーバ1041からリモコン960aあるいは960bに対して利用者毎に異なるＵＩが送信され、表示される例を示す図である。

【０３３８】対象機種に向けていない状態でのリモコン960aあるいは960bには、図１０８の中央のようにデフォルト状態の画面が表示されている。この画面は、リモコン960a、960bに共通である。

【０３３９】ここで、利用者と、リモコン960aあるいは960bと、対象機種との間のコミュニケーションの流れを説明する。

①利用者がリモコン960aあるいは960bを対象機種に向ける。

②リモコン960aあるいは960bから対象機種にＵＩ要求信号を送るタイミングを決定する為に、利用者がリモコン960aあるいは960bのタッチパネルなどに触れる。または、あらかじめ常に一定間隔でＵＩ要求信号を送るように設定されている。

③リモコン960aあるいは960b自身を識別するためのリモコン識別情報（リモコンＡ、リモコンＢ）と、利用者自身を識別するための利用者識別情報（上級者、初心者）とを、共にＵＩ要求信号を対象機種に送る。

④リモコン960aあるいは960bから、リモコン識別情報と利用者識別情報とＵＩ要求信号を受け取った対象機種は、受け取ったリモコン識別情報と利用者識別情報と共に、対象機種自身を識別する対象機種識別情報を、対象機種を管理しているサーバ1041に送る。

⑤サーバ1041はリモコン識別情報で示されるリモコン960aあるいは960bに、利用者識別情報と対象機種識別情報で示されるＵＩを、無線ＬＡＮ等を介して発信する。図１０８の例では、初心者にとっては利用するのが難しい同報通信機能の為のＵＩを初心者には送らず、上級者だけに送っている。

⑥発信された自分宛てのＵＩを受け取ったリモコン960aあるいは960bは、ＵＩを表示する。

【０３４０】上記の例では、利用者識別情報として、リモコンから利用者のレベル情報を送信するようにしていたが、リモコンからはユーザ名などのユーザを個別に識別する情報を送信するようにして、対象機器あるいはサーバにおいて、受信した識別情報からユーザのレベルを判別するようにしてもよい。

【０３４１】上記の例ではＵＩに限って説明したが、利用者毎に異なる利用者識別情報を参照すれば、利用者宛てに到着した緊急メールの内容や、すぐに知らせたいスケジュールなどをＵＩに含めてリモコンに送信することができる。

【０３４２】図１０９は、リモコンが対象機種からＵＩを直接受け取らず、無線ＬＡＮ等を介して利用者毎に異なるＵＩを受け取り、表示する例におけるリモコン側の処理の例を示すフローチャートである。リモコン側の処理の流れを説明する。

【０３４３】ステップS1091で、利用者の指示操作があるまで待機する。ステップS1092で、対象機種からＵＩを発信してもらう為のＵＩ要求信号と、リモコン自身を識別するためのリモコン識別情報と、利用者自身を識別するための利用者識別情報を赤外線通信等の方法で発信する。ステップS1093で、どこからかＵＩが発信されるまで待機する。ステップS1094で、受け取ったＵＩを、表示する。

【０３４４】図１１０は、リモコンが対象機種からＵＩを直接受け取らず、無線ＬＡＮ等を介して利用者毎に異なるＵＩを受け取り、表示する例における、対象機種側の処理の例を示すフローチャートである。対象機種側の処理の流れを説明する。

【０３４５】ステップS1101で、リモコンからの要求信号があるまで待機する。ステップS1102で、リモコンから受け取ったリモコン識別情報と、利用者識別情報と共に、自分自身の対象機種識別情報をサーバ1041に送信し、ＵＩの送信を依頼する。

【０３４６】図１１１は、リモコンが対象機種からＵＩを直接受け取らず、無線ＬＡＮ等を介して利用者毎に異なるＵＩを受け取り、表示する例における、サーバ側の処理の例を示すフローチャートである。また、図１１２は、対象機種と利用者識別情報から決定されるＵＩを示した表の一例である。サーバ側の処理の流れを説明する。

【０３４７】ステップS1111で、対象機種からのＵＩ送信要求信号があるまで待機する。ステップS1112で、対象機種から受け取ったリモコン識別情報が示すリモコンに、図１１２のような定義を参照して、対象機種識別情報と利用者識別情報に対応するＵＩを発信する。

【０３４８】〔実施形態３８〕図１１３、１１４は、目の前にある操作対象機種が持っていない機能を実現する例を示す図である。この例の利用者とリモコンと対象機種との間のコミュニケーションの流れを説明する。

①利用者がリモコン960を対象機種に向け、行いたい機能を指定する。

②リモコン960からの要求を受け取った操作対象機種は、サーバ1041にその要求を伝える。

③サーバ1041は要求された機能に対応した機種のＵＩを発信する。

④リモコン960は受信したＵＩを表示する。

⑤利用者はＵＩの指示にしたがって、操作を行う。この例の場合、利用者は目の前にあるコピー機962に送りたい文書をセットし、リモコン960で送り先を指示して実行させる。

⑥操作対象機器は、自分ができることは自分で実行し、自分ではできないことを他の機器に依頼する。この例の場合、コピー機962は文書の読み込みは行うが、ＦＡＸ送信することはできないので、ＦＡＸ963に文書データと共に、送信先などの操作指示の内容を送る。

⑦ＦＡＸ963は指示に従い、送られてきた文書データを指定された送信先にＦＡＸ送信する。

【０３４９】上記の例で、コピー機962が自分ではできない機能を依頼する機器を決定するには、各機器が他の機器の機能についての知識を持っているようにしてもよいし、ネットワーク上の各機器に対して、その機能が実行可能かを問い合わせた結果、決定するようにしてもよい。あるいは、機能と対応する機種の知識を持つサーバ1041に問い合わせるようにしてもよい。

【０３５０】〔実施形態３９〕図１１５は、目の前にある操作対象機種とリモコンの途中に障害物があるなどの理由で、リモコンが操作対象機種と直接コミュニケーション取れなかった場合に、他の経路で間接的なコミュニケーションを試みる例を示す図である。

【０３５１】ここで、利用者とリモコンと対象機種との間のコミュニケーションの流れを説明する。なお、下記の説明で②から③は必須のものではない。例えば、④で対象機種が常に一定間隔でリモコンに向けた信号を発しているようにすれば、同じ効果を実現できる。つまり、図１１５では必須の部分だけを図示している。

【０３５２】①利用者がリモコン960を対象機種に向ける。

②リモコン960から対象機種にＵＩ要求信号を送るタイミングを決定する為に、利用者がリモコン960のタッチパネルなどに触れる。または、あらかじめ常に一定間隔でＵＩ要求信号を送るように設定されている。

③リモコン960からＵＩ要求信号を対象機種に送る。

④対象機器は、リモコン960からのＵＩ要求信号の要求に従って、あるいはあらかじめ常に一定間隔でＵＩを送るように設定されていればその設定にしたがって、ＵＩを送る。

⑤ＵＩを受け取ったリモコン960は、ＵＩを表示する。

⑥ここで、リモコン960では、ＵＩ要求信号送信から一定時間経過後、あるいは一定間隔でＵＩを送るように設定されている場合にはその間隔以上の間、ＵＩが送られてこない場合、別経路でＵＩ要求信号を送る。この例では、赤外線信号によるコミュニケーションを実現できない場合、無線ＬＡＮを利用したコミュニケーションを試みる。

⑦無線ＬＡＮを介して、取得したＵＩを表示する。

【０３５３】図１１６は、目の前にある操作対象機種とリモコンの途中に障害物があるなどの理由で、リモコンが操作対象機種と直接コミュニケーション取れなかった場合に、他の経路で間接的なコミュニケーションを試みる例における、リモコン側の処理の例を示すフローチャートである。リモコン側の処理の流れを説明する。ステップS1161で、利用者の指示操作があるまで待機する。ステップS1162で、対象機種からＵＩを発信してもらう為のＵＩ要求信号と、リモコン自身を識別するためのリモコン識別情報を赤外線等の方法で発信する。ステップS1163で、ＵＩを受信したかどうかチェックする。ステップS1164で、要求送信後、一定時間経過したかどうかチェックする。ステップS1165で、対象機種からＵＩを発信してもらう為のＵＩ要求信号と、リモコン自身を識別するためのリモコン識別情報とをステップS1162での発信経路とは異なる、無線ＬＡＮ等の方法で発信する。ステップS1166で、受け取ったＵＩを、表示する。

【０３５４】この場合、操作対象機種自体に直接送信したＵＩ要求信号を、無線ＬＡＮサーバ1041に送ることになるが、ＵＩ要求信号を受け取った無線ＬＡＮサーバ1041では、操作対象機種が不明であるので、まず、機種(機能)を選択するためのメニューが表示される。そして、選択された機種に対応するＵＩが表示される。このＵＩは、無線ＬＡＮサーバ1041がリモコン960から機種選択信号を受信して、その機種に対応するＵＩをリモコン960に送信するようにしてもよいし、前記メニューとともに、そのメニューから選択可能な複数のＵＩを送信するようにしてもよい。

【０３５５】〔実施形態４０〕図１１７は、利用者が行った操作・アクションと、時刻とを、それに関わる重要な情報と共に履歴として保存しておく例を示す図である。

【０３５６】ここで、利用者が行った操作・アクションと、時刻を、それに関わる重要な情報と共に履歴として保存するときの流れについて、説明する。

①利用者が文書をＦＡＸ963にセットし、利用者（発信者）名と共に、Ａ社のａさんに送信するように指示する。
②ＦＡＸ963は指示にしたがって文書を送信すると共に、Tomさんの指示により、文書を aさんに送付した事実を、送付した文書及び送付時刻と共にサーバ1041に伝える。
③サーバ1041は、受け取った文書を適当な名前のファイル〔File ABC〕として保存すると共に、受け取った事実を履歴情報として保存する。

【０３５７】図１１８は、利用者が行った操作・アクションと、時刻とを、それに関わる重要な情報と共に履歴として保存しておく例における、リモコン側の処理の例を示すフローチャートである。リモコン側の処理の流れを説明する。

【０３５８】ステップS1181で、利用者の指示操作があるまで待機する。ステップS1182で、利用者が行った指示操作に対する要求信号と、リモコン自身を識別するためのリモコン識別情報と、利用者自身を識別するための利用者識別情報を赤外線通信等の方法で発信する。ステップS1183で、どこからかＵＩが発信されるまで待機する。ステップS1184で、受け取ったＵＩを、表示する。

【０３５９】図１１９は、利用者が行った操作・アクションと、時刻を、それに関わる重要な情報と共に履歴として保存しておく例における、対象機種側の処理の例を示すフローチャートである。対象機種側の処理の流れを説明する。

【０３６０】ステップS1191で、リモコン960からの要求信号があるまで待機する。ステップS1192で、リモコン960からの要求信号に対応する処理を実行する。図１１７の例の場合、利用者がセットした文書を読み込み、A社のaさんに送信することになる。ステップS1193で、リモコン960から受け取ったリモコン識別情報と、利用者識別情報と、自分自身の対象機種識別情報と、行ったアクションと関係する重要な情報とをサーバ1041に送信する。図１１７の例の場合、Tomさんの指示により、文書を aさんに送付した事実を、送付時刻と共に、この事実に関わる重要な情報である送付文書自体をサーバ1041に送信する。

【０３６１】図１２０は、利用者が行った操作・アクションと、時刻とを、それに関わる重要な情報と共に履歴として保存しておく例における、サーバ側の処理の例を示すフローチャートである。また、図１２１は、この処理の結果、更新された履歴情報の一例を示す図である。サーバ側の処理の流れを説明する。

【０３６２】ステップS1201で、対象機種からの要求信号があるまで待機する。ステップS1202で、受け取った事実に関わる重要な情報を保存する。図１１７の例の場合、Tomさんが送信を指示した文書を File ABC として保存している。

【０３６３】ステップS1203で、受け取った事実により、履歴情報を更新する。図１１７の例の場合、Tomさんが1996/7/5 10:00に、Ａ社のａさんに文書を送ったことが、ステップS1201で保存したファイル名と共に、記録される。図１２１は更新された履歴情報の例であり、1996/7/3にMaryがFileXYZを10部コピーしたという事実に、1996/7/5 10:00に、TomさんがFile ABCをＡ社のａさんに送信したという事実が追加されたものである。ステップS1204で、対象機種から受け取ったリモコン識別情報が示すリモコンに、処理が正しく終了したというＵＩを発信する。

【０３６４】〔実施形態４１〕図１２２及び図１２３は、利用者が行った操作・アクションと、時刻を、それに関わる重要な情報と共に履歴として保存した後に、履歴を元に操作を行った例を示す図である。

【０３６５】ここで、利用者が行った操作・アクションと、時刻を、それに関わる重要な情報と共に履歴として保存した後に、履歴を元に操作を行ったときの流れについて、説明する。
①リモコン960は、コピー機962に向かって、Tomさんの履歴を見せるように指示する。
②コピー機962は、この指示に基づいて、履歴を管理するサーバ1041に、Tomさんの履歴を見せるように伝える。
③サーバ1041は、履歴情報を参照して、Tomさんが関わった履歴のみをＵＩとしてコピー機962に発信し、コピー機962は、このＵＩをリモコン960に送信する。
④Tomさんは、リモコン960に表示されている履歴の中から特定の事実を選択し、アクションを指示する。この例の場合、以前にＡ社に送った資料があらためて必要になったので、履歴の中から「File ABCをＡ社のａさんに送信した」という事実を選択し、アクションとして「コピー」を指示することで、目の前のコピー機962からその資料を取り出そうとしている。
⑤コピー機962は、利用者からの「File ABCをコピー」という指示をサーバ1041に伝える。
⑥サーバ1041は、対応する文書「File ABC」をコピー機962に送る。
⑦コピー機962は、サーバ1041から受け取った文書を印刷する。

【０３６６】上記において、ユーザは、目の前のコピー機962から必要な資料を取り出すために、履歴の中から「File ABCをＡ社のａさんに送信した」という事実を選択するようにしていたが、出力したい文書の名称「File ABC」を知っている場合には、履歴に代えてファイルの一覧を表示させ、その中からファイル名を選択したり、直接ファイル名を入力したりすることもできる。

【０３６７】また、上記では、取り出す文書を、ＦＡＸ963で送信するとともに、サーバ1041に保存した文書としていたが、ネットワーク上のＰＣに保存されている文

書などを対象とすることもできる。

【０３６８】図１２４は、以上の実施形態で利用するリモコン960の構成例を示す図である。

【０３６９】1241は表示部であり、液晶により表示を行なう。更に、表示部1241には抵抗膜が付いており、ペン1242を用いて情報を入力することができる。この入力は、ペン1242で画面上のボタンを選択するものでもよい。更に、文字認識機能を設け、ペン1242で書いた文字を入力することもできる。

【０３７０】入力された情報は、通信部1243より他の機器へ送信することができる。また、装置内部には、制御のためのＣＰＵ1244とともに、記憶部1245が備えられており、入力情報や通信部1243から受信した情報、操作の履歴などを記憶する。記憶部1245としては、ＳＲＡＭカード、ＳＩＭＭ、ＨＤＤなどを用いることができる。また、バッテリー駆動であり、防滴になっている。

【０３７１】図１２５は、以上の実施形態で利用するリモコン960の他の構成例を示す図である。

【０３７２】1251は表示部であり、液晶あるいはCRTにより表示を行なう。更に、表示部1251に、オプションとしてタッチパネルを追加することもできる。これにより、指やペンなどを用いて情報を入力することができる。1252は、ボタンの操作により情報を入力する入力部である。入力された情報は、通信部1253より他の機器へ送信することができる。また、装置内部には、制御のためのＣＰＵ1254とともに、記憶部1255が備えられており、入力情報や通信部1253から受信した情報、操作の履歴などを記憶する。記憶部1255としては、ＳＲＡＭカード、ＳＩＭＭ、ＨＤＤなどを用いることができる。

【０３７３】図１２５のリモコンは、記憶部1255を取り外しても、ボタンリモコンとして使用できる。また、通信部1253を取り外しても、電子メモ帳（PC）として使用できる。また、入力部1252を取り外しても、タッチパネルを用いて、図１２４のように使用することができる。

【０３７４】図１２６は、以上の実施形態で利用するリモコン960の他の構成例を示す図である。

【０３７５】1261は表示部であり、液晶により表示を行なう。1262は、ボタンの操作により情報を入力する入力部である。入力された情報は、赤外通信部1263より他の機器へ送信することができる。また、装置内部には、制御のためのＣＰＵ1264とともに、記憶部1265が備えられており、入力情報や赤外通信部1263から受信した情報、操作の履歴などを記憶する。記憶部1255としては、ＳＲＡＭカード、ＳＩＭＭ、ＨＤＤなどを用いることができる。更に、PCMCIAスロット1266が設けられており、例えば、PCMCIAカードを差し込んで、PCMCIAバスによる接続が可能となり、２系統の通信経路を利用できる。また、赤外通信部1263は発光による送信のみで、受信はPCMCIAバスを使用するようにしてもよい。もちろん、PCMCIAバスによる接続を使用しなくてもよい。

【０３７６】なお、本発明は、上記実施形態の機能が実現できる範囲において、複数の機器（例えばコンピュータ本体、インターフェイス機器、ディスプレイなど）から構成されるシステムに適用しても、単一の機器からなる装置に適用してもよい。また、前述した実施形態の機能を実現するように各種デバイスを動作させることを目的として、該各種デバイスと接続された装置あるいはシステム内のコンピュータに、前述した実施形態の機能を実現するソフトウェアのプログラムコードを供給し、供給されたプログラムにしたがって、そのシステムあるいは装置のコンピュータ（またはＣＰＵやＭＰＵ）により、前記各種デバイスを動作させることによって実施したものも、本願発明の範囲に含まれる。またこの場合、記憶媒体から読み出されたプログラムコード自体が前述した実施形態の機能を実現することになり、そのプログラムコード自体、そのプログラムコードをコンピュータに供給する手段、例えばかかるプログラムコードを記憶した記憶媒体は、本発明を構成することになる。

【０３７７】かかるプログラムコードを供給する為の記憶媒体としては、例えば、フロッピーディスク、ハードディスク、光ディスク、光磁気ディスク、ＣＤ－ＲＯＭ、ＣＤ－Ｒ、磁気テープ、不揮発性のメモリカード、ＲＯＭ等を用いることができる。

【０３７８】また、コンピュータが読み出したプログラムコードを実行することにより、前述した実施形態の機能が実現されるだけでなく、そのプログラムコードの指示に基づき、コンピュータ上で稼動しているＯＳ（オペレーティングシステム）、あるいは他のアプリケーションソフトなどと協働して前述の実施形態の機能が実現される場合にも、かかるプログラムコードは本願発明の範囲に含まれることは言うまでもない。

【０３７９】更に、記憶媒体から読み出されたプログラムコードが、コンピュータに挿入された機能拡張ボードやコンピュータに接続された機能拡張ユニットに備わるメモリに書き込まれた後、そのプログラムコードの指示に基づき、その機能拡張ボードや機能拡張ユニットに備わるＣＰＵ等が実際の処理の一部または全部を行い、その処理によって前述した実施形態の機能が実現される場合も含まれることは言うまでもない。

【０３８０】本願発明を上記記憶媒体に適用する場合、その記憶媒体には、先に説明したフローチャートに対応するプログラムコードを格納すればよい。

【０３８１】

【発明の効果】以上説明したように、本発明によれば、処理の目的を達成するためのユーザの操作の負担を軽減でき、利用可能な最適な装置資源が活用でき、不要もしくは不適当な処理を回避できるという効果がある。

【図面の簡単な説明】

【図１】実施形態のシステム構成を表す図である。

【図２】実施形態の機能構成を示す図である。

【図３】実施形態の各装置のハードウェア構成を表す図である。
【図４】実施形態の処理の流れを示したフローチャートである。
【図５】複数のプリンタから、最適なプリンタを選択して印刷を実行する処理の流れを示した図である。
【図６】リモコンを利用する場合を説明する図である。
【図７】スキャナから文書を読み込み、特定のプリンタに送信しようとした場合の例を示す図である。
【図８】スキャナから文書を読み込み、スキャナが管理できない特定のプリンタに送信しようとした場合の例を示す図である。
【図９】スキャナから文書を読み込み、スキャナが管理できない特定のプリンタに送信しようとした場合の例を示す図である。
【図１０】スキャナから文書を読み込み、スキャナが管理できない特定のプリンタに送信しようとした場合の例を示す図である。
【図１１】プリンタの状態を通知する場合の例を示す図である。
【図１２】実施形態８の処理手順を表わしたフローチャートである。
【図１３】ファイリング処理で、ファイリングする情報を事前にユーザに伝える場合を示す図である。
【図１４】受信データの要否を判断し、不要な情報を破棄する場合を示す図である。
【図１５】実施形態９の処理手順を示すフローチャートである。
【図１６】実施形態９の情報の流れを示す図である。
【図１７】ＪＯＢ実行の詳細な手順を表わすフローチャートである。
【図１８】読み込む機密情報の例を示す図である。
【図１９】ＪＯＢテーブルの例を示す図である。
【図２０】印刷Windowの例を示す図である。
【図２１】ＪＯＢテーブルの例を示す図である。
【図２２】<file A>の内容を示す図である。
【図２３】システム構成例示す図である。
【図２４】質問Windowの例を示す図である。
【図２５】ＪＯＢテーブルの例を示す図である。
【図２６】スケジュールデータの例を示す図である。
【図２７】利用者への問い合わせの例を示す図である。
【図２８】ＪＯＢテーブルの例を示す図である。
【図２９】ＪＯＢテーブルの例を示す図である。
【図３０】プリンタのステータスの変化の例を示す図である。
【図３１】プリンタステータス表を表わす図である。
【図３２】ＪＯＢテーブルの例を示す図である。
【図３３】質問Windowの例を示す図である。
【図３４】ＪＯＢテーブルの例を示す図である。
【図３５】プリンタのステータスの変化の例を示す図である。
【図３６】プラン及びアクションのルールを示す図である。
【図３７】プラン及びアクションのルールを示す図である。
【図３８】目的に対するアクション及び前提条件を示す図である。
【図３９】各デバイスのプロパティの例を示す図である。
【図４０】各デバイスのステータスの例を示す図である。
【図４１】複数の装置がネットワークに接続されている状態を表した図である。
【図４２】実施形態１４の処理を行うための機能構成を示す図である。
【図４３】実施形態１４の処理の流れを表わしたメインのフローチャートである。
【図４４】他の装置を制御するときの処理の流れを表わすフローチャートである。
【図４５】自分の装置で処理を行う場合の処理の流れを表わすフローチャートである。
【図４６】指示されたプリンタとは異なるプリンタで出力を行なう例を示した図である。
【図４７】指示されたプリンタが他のプリンタにＪＯＢを転送する例を示した図である。
【図４８】ユーザのプリンタがユーザの外出先のプリンタにＪＯＢを転送する例を示した図である。
【図４９】実施形態１６の処理の流れを示したフローチャートである。
【図５０】実施形態１６の処理の概念図である。
【図５１】実施形態１７のＪＯＢの流れを示す図である。
【図５２】プリントＪＯＢ自動設定部の処理の流れを表したフローチャートである。
【図５３】複数のプリンタの1文字あたりの印刷時間とトナー使用量を表した図である。
【図５４】プリントＪＯＢの内容と、利用者が指定したパラメータを表した図である。
【図５５】プリントＪＯＢ自動変更部の処理の流れを表したフローチャートである。
【図５６】プリントＪＯＢの内容と、利用者が指定したパラメータを表した図である。
【図５７】実施形態１９のＪＯＢの流れを示す図である。
【図５８】プリントＪＯＢのパラメータを自然言語を利用して設定する例を説明する図である。
【図５９】プリントＪＯＢのパラメータの設定を、文書自体で設定する例を説明する図である。
【図６０】実施形態２１のＪＯＢの流れを示す図である。

【図６１】プリントＪＯＢシュミレーション部による処理のフローチャートである。
【図６２】実施形態２２のプリンタシステムの処理手順のフローチャートである。
【図６３】実施形態２２のプリンタシステムのプリンタの外観図である。
【図６４】実施形態２３の処理手順を示すフローチャートである。
【図６５】実施形態２３のシステムの機能構成を示す図である。
【図６６】実施形態２３の全体的な処理を行なうシステムと外部との入出力の種類を表した図である。
【図６７】電子メールからスケジュールを抽出する例を示す図である。
【図６８】実施形態２３の具体的な処理手順を示すフローチャートである。
【図６９】スケジュールが衝突する例を示す図である。
【図７０】利用者が音声によりシステムに質問した場合の例を示す図である。
【図７１】実施形態２４の処理手順を示すフローチャートである。
【図７２】衝突するスケジュールを調整する例を示す図である。
【図７３】衝突するスケジュールのリプランニングの処理手順を示すフローチャートである。
【図７４】返事のリプランニングの処理手順を示すフローチャートである。
【図７５】実施形態２６のシステムの入出力も含めた全体イメージを表す図である。
【図７６】実施形態２６のシステム全体の処理の流れを表わしたフローチャートである。
【図７７】入力Management部の処理の流れを表わしたフローチャートである。
【図７８】Core部の処理の流れを表わしたフローチャートである。
【図７９】出力Management部の処理の流れを表わしたフローチャートである。
【図８０】データ抽出処理の手順を表わしたフローチャートである。
【図８１】データ抽出処理の対象となる文書の例を示す図である。
【図８２】特定ブロック読み取り処理を説明する図である。
【図８３】日付データを参照した処理の判断手順を示すフローチャートである。
【図８４】実施形態２７の情報の流れを示す図である。
【図８５】実施形態２８の情報の流れを示す図である。
【図８６】実施形態２８の情報の流れを示す図である。
【図８７】実施形態２８の処理手順を示すフローチャートである。
【図８８】一般知識ベースの知識を表わした図である。
【図８９】カバーページに特定された分野の知識ベースの知識をあらわした図である。
【図９０】過去に行われた履歴を音声で参照して、処理を実行する例を示す図である。
【図９１】実施形態３０の処理の流れを示すフローチャートである。
【図９２】入力文書の例を示す図である。
【図９３】システムとユーザとの会話の内容を表わした図である。
【図９４】会話から判断してシステムが作成した出力文書である。
【図９５】利用者に問い合せた後、必要な処理を自動実行した例のフローチャートである。
【図９６】リモコンによりシステムを操作する実施形態を示す図である。
【図９７】ステータスモニタの例を示す図である。
【図９８】リモコンが対象機種を認識し、対応するＵＩを表示する例を示す図である。
【図９９】リモコンが対象機種を認識し、対応するＵＩを表示する例における、リモコン側の処理のフローチャートである。
【図１００】リモコンが対象機種を認識し、対応するＵＩを表示している例における、対象機種側の処理のフローチャートである。
【図１０１】リモコンが対象機種からＵＩを受け取り、表示する例を示す図である。
【図１０２】リモコンが対象機種からＵＩを受け取り、表示する例における、リモコン側の処理のフローチャートである。
【図１０３】リモコンが対象機種からＵＩを受け取り、表示する例における、対象機種側の処理のフローチャートである。
【図１０４】リモコンが対象機種からＵＩを直接受け取らず、無線ＬＡＮ等を介してＵＩを受け取り、表示する例を示す図である。
【図１０５】リモコンが無線ＬＡＮ等を介してＵＩを受け取り、表示する例におけるリモコン側の処理のフローチャートである。
【図１０６】リモコンが無線ＬＡＮ等を介してＵＩを受け取り、表示する例における、対象機種側の処理の例を示すフローチャートである。
【図１０７】リモコンが無線ＬＡＮ等を介してＵＩを受け取り、表示する例における、サーバ側の処理の例を示すフローチャートである。
【図１０８】リモコンが無線ＬＡＮ等を介して利用者毎に異なるＵＩを受け取り、表示する例を示す図である。
【図１０９】リモコンが無線ＬＡＮ等を介して利用者毎に異なるＵＩを受け取り、表示する例におけるリモコン側の処理のフローチャートである。

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【図１１０】リモコンが無線ＬＡＮ等を介して利用者毎に異なるＵＩを受け取り、表示する例における、対象機種側の処理のフローチャートである。

【図１１１】リモコンが無線ＬＡＮ等を介して利用者毎に異なるＵＩを受け取り、表示する例における、サーバ側の処理のフローチャートである。

【図１１２】対象機種と利用者識別情報から決定されるＵＩを示した表を表わす図である。

【図１１３】目の前にある操作対象機種が持たない機能を実現する例を示す図である。

【図１１４】目の前にある操作対象機種が持たない機能を実現する例を示す図である。

【図１１５】目の前にある操作対象機種と直接コミュニケーション取れなかった場合の対応の例を示す図である。

【図１１６】実施形態３９のリモコン側の処理のフローチャートである。

【図１１７】利用者が行った操作・アクションと、時刻とを、それに関わる重要な情報と共に履歴として保存している例を示す図である。

【図１１８】実施形態４０のリモコン側の処理のフローチャートである。

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【図１１９】実施形態４０の対象機種側の処理のフローチャートである。

【図１２０】実施形態４０のサーバ側の処理のフローチャートである。

【図１２１】更新された履歴情報の一例を示す図である。

【図１２２】履歴を元に操作を行った例を示す図である。

【図１２３】履歴を元に操作を行った例を示す図である。

【図１２４】リモコンの構成例を示す図である。

【図１２５】リモコンの構成例を示す図である。

【図１２６】リモコンの構成例を示す図である。

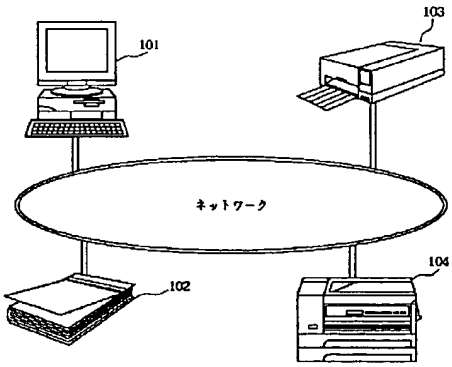
【図１２７】事前通知を行うかどうかを指定した情報を示す図である。

【図１２８】ＪＯＢの目的に応じた装置が存在しない場合の情報の流れを示す図である。

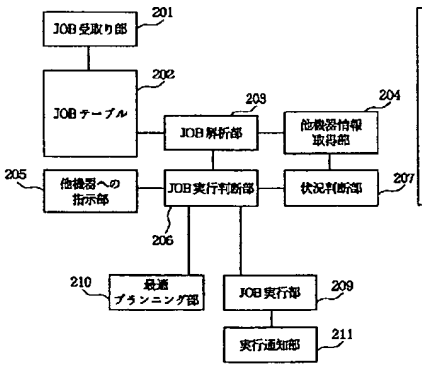
【図１２９】最適な方法をユーザに提案するウィンドウの表示例を示す図である。

【図１３０】パラメータ設定における文字列の表わす意味と、その意味を完成させるために必要な要求項目とを示した図である。

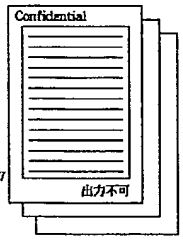
【図１】



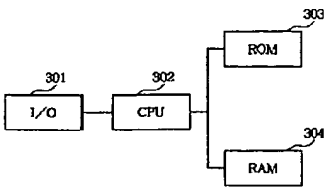
【図２】



【図１８】



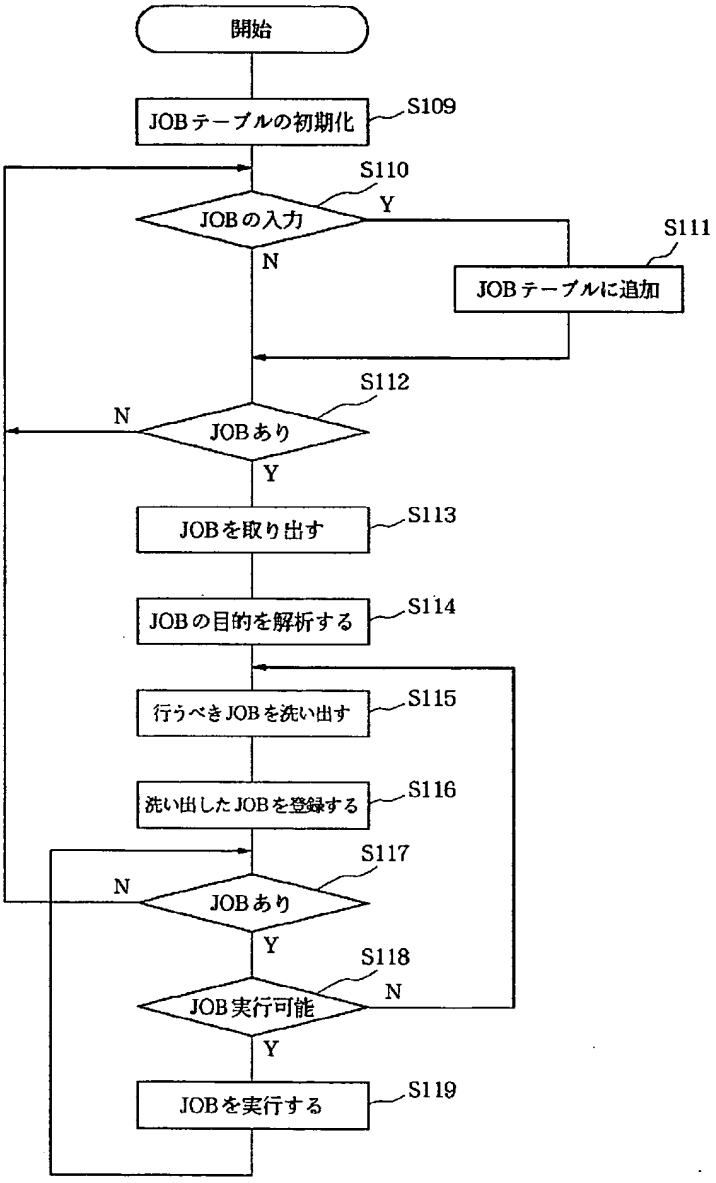
【図３】



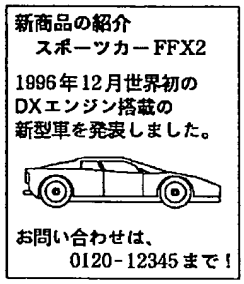
【図１９】

JOB実行条件	JOB実行内容
入力無し＆JOB待ち＆電源OFF可能時間帯	電源OFF

【図４】



【図２２】



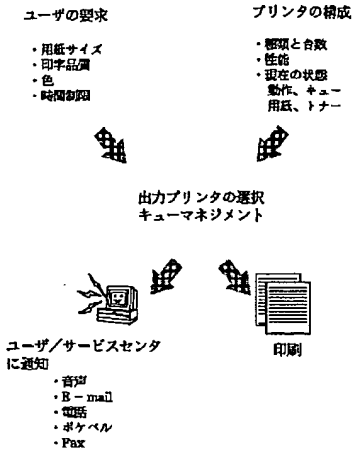
【図２１】

JOB実行条件	JOB実行内容
指条件	入力を解析する
入力無し＆JOB無し＆ 電源OFF可能時間帯	電源OFF

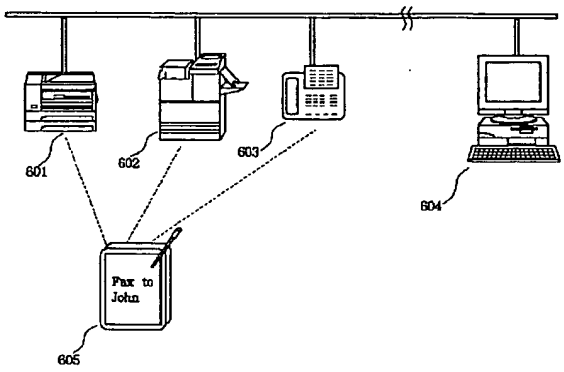
【図２５】

JOB実行条件	JOB実行内容
入力無し＆10分間経過	利用者の応答が無い 場合の対応をする
入力無し＆JOB無し＆ 電源OFF可能時間帯	電源OFF

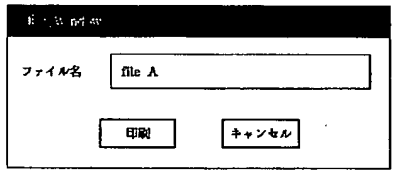
【図５】



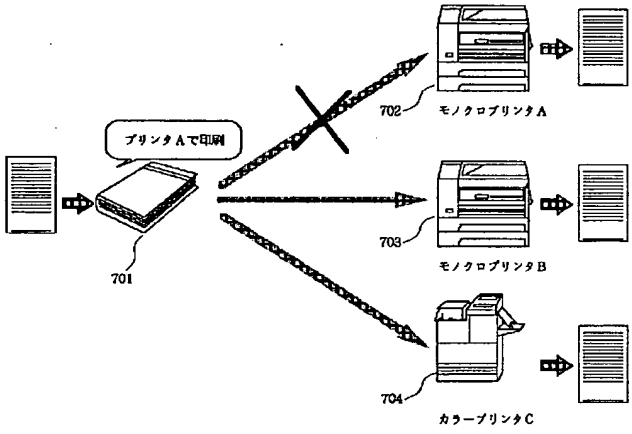
【図６】



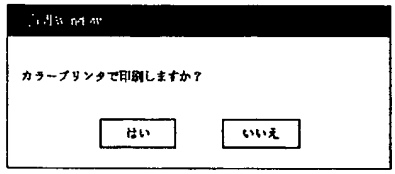
【図２０】



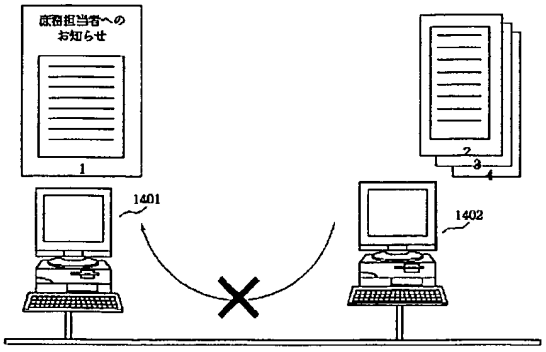
【図７】



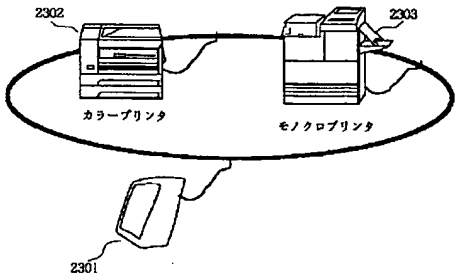
【図２４】



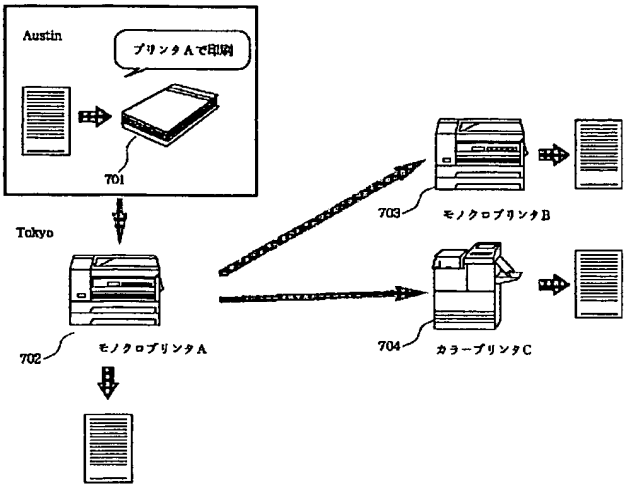
【図１４】



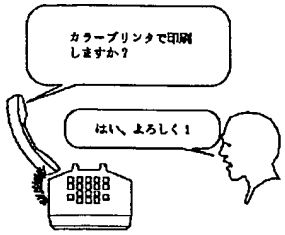
【図２３】



【図８】



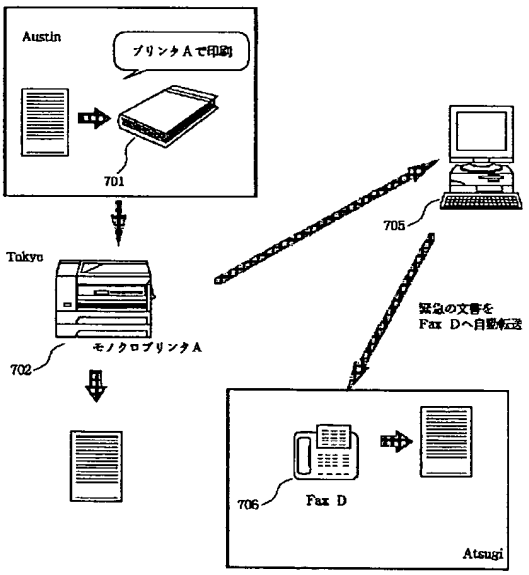
【図２７】



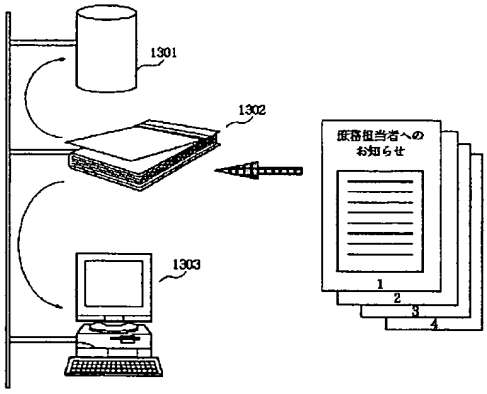
【図２９】

JOB実行条件	JOB実行内容
プリンタステータスが印刷中以外になった	ステータスに対応した処理をする
入力無し＆JOB無し＆電源OFF可能時間帯	電源OFF

【図９】



【図１３】



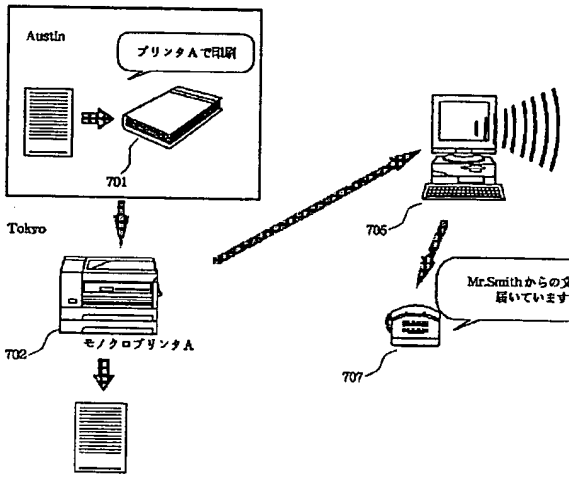
【図２６】

時間	予定	連絡先	使用予定資料
12／5 10：00～12：00	会議	内線 12345	無し
12／5 13：00～16：00	商談	03－3210－9876	file A

【図２８】

JOB実行条件	JOB実行内容
入力無し	利用者の応答が無い場合の対応をする
入力無し＆JOB無し＆電源OFF可能時間帯	電源OFF

【図１０】

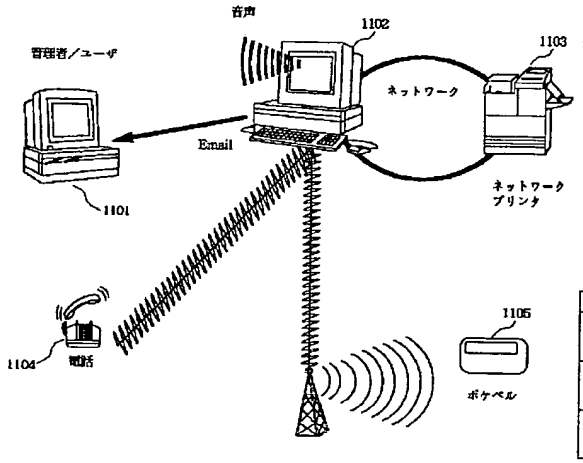


【図３２】

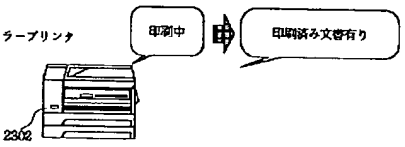
JOB実行条件	JOB実行内容
プリンタステータスが印刷 済み文書有りのまま ＆10分経過	印刷済み文書がある 場合の対応
入力無し＆JOB無し＆ 電源OFF可能時間帯	電源OFF

【図３５】

【図１１】



【図３０】



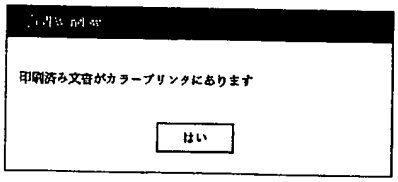
【図３４】

JOB実行条件	JOB実行内容
プリンタステータスが印刷 済み文書有り以外	印刷済み文書有りに対応 したJOBを見直す
入力無し＆10分間経過	利用者の応答が無い場合 の対応をする
入力無し＆JOB無し＆ 電源OFF可能時間帯	電源OFF

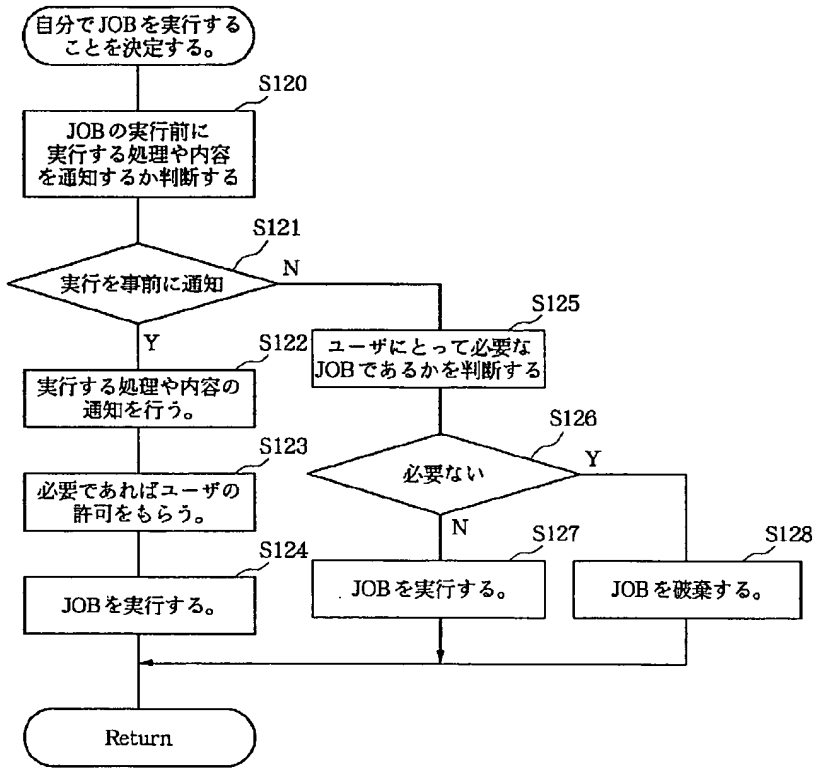
【図３１】

プリンタステータス	ステータスの意味
正常	正常
印刷中	印刷中
印刷済み文書有り	以前に印刷された文書が トレイに残っています

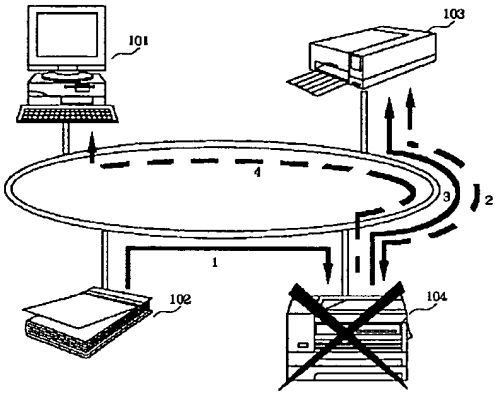
【図３３】



【図１２】



【図１６】



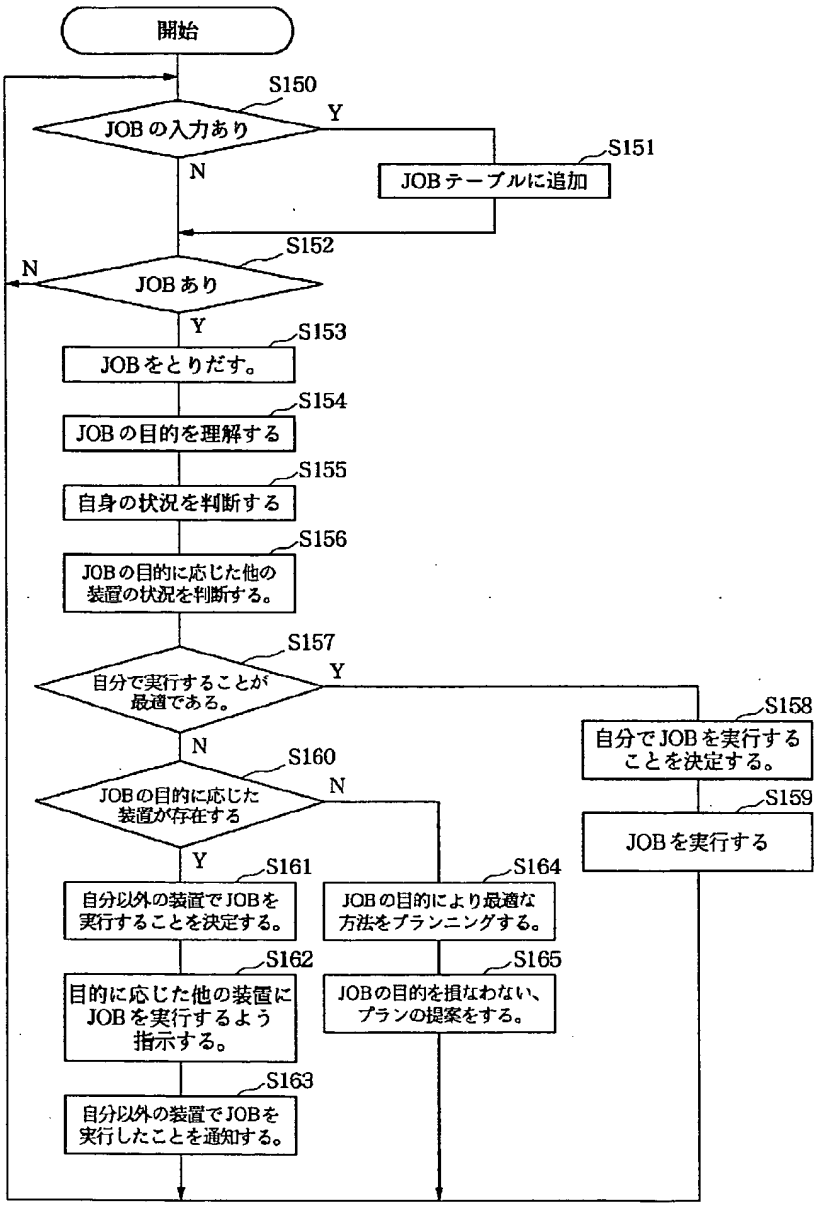
【図３９】

プロパティ	原稿文書	カラープリンタ	白黒プリンタ
プリンタタイプ		インクジェット	レーザー
カラーか白黒か	カラー有り	カラー	白黒
ランニングコスト		1枚20円	1枚5円
印刷速度		毎分5枚	毎分20枚
原稿用紙サイズ	A4	A4	A3
出力用紙サイズ		A4	A3
使用可能用紙種類		通常、BJ、OHP	通常、OHP
拡大縮小可能か		不可能	50％～200％
レイアウト可能か		不可能	上下・左右・4分割
印刷の向き		変更可能	変更可能
給紙方法		手差し、カートリッジ	手差し、A3カートリッジ、A4カートリッジ
両面印刷可能か		不可能	可能
綴じ方向の指定		可能	可能
綴じ代の指定		可能	可能
フォント指定		可能	可能

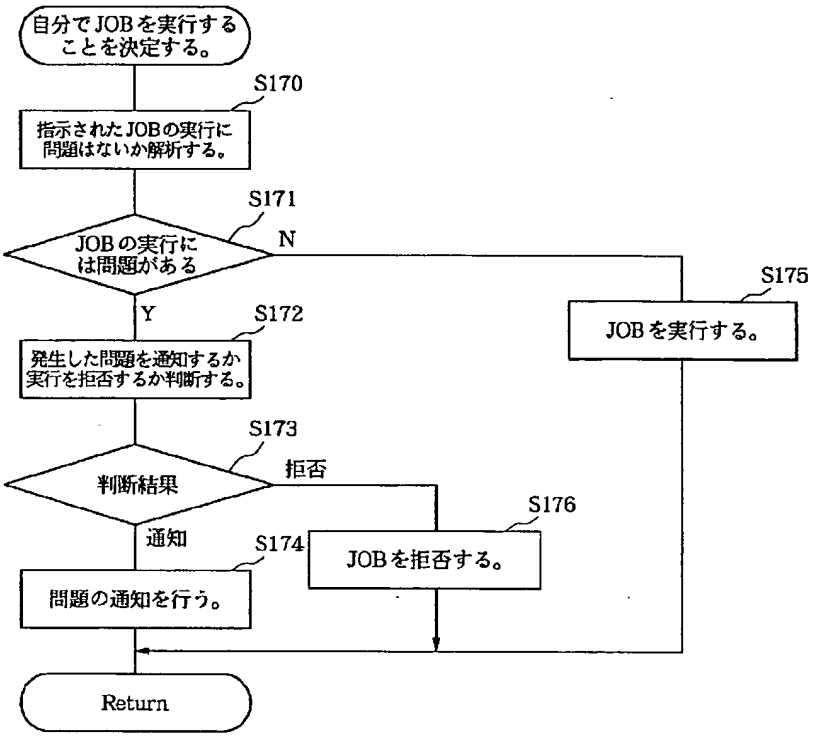
【図１１２】

	初心者	上級者
FAX	簡単UI	標準UI ＋同報通信UI

【図１５】


開始
S150
JOBの入力あり
Y
N
S151
JOBテーブルに追加
S152
N
JOBあり
Y
S153
JOBをとりだす。
S154
JOBの目的を理解する
S155
自身の状況を判断する
S156
JOBの目的に応じた他の装置の状況を判断する。
S157
自分で実行することが最適である。
Y
N
S158
自分でJOBを実行することを決定する。
S159
JOBを実行する
S160
JOBの目的に応じた装置が存在する
N
Y
S161
自分以外の装置でJOBを実行することを決定する。
S162
目的に応じた他の装置にJOBを実行するよう指示する。
S163
自分以外の装置でJOBを実行したことを通知する。
S164
JOBの目的により最適な方法をプランニングする。
S165
JOBの目的を損なわない、プランの提案をする。

【図１７】



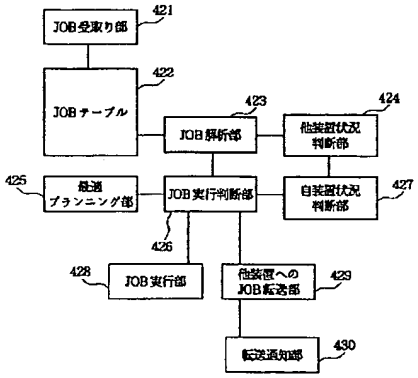
【図３６】

ユーザの目的	前提条件	プラン&アクション
印刷済み文書取得	印刷済み文書有り	①ある場所を知る ②その場所へ行く ③印刷済み文書を取得
印刷済み文書有り	印刷元文書有り &要求を満足する文書 が印刷可能な印刷環境	①印刷指示
賛意表明	問い合せをした	①音声やマウス操作等による賛意表明操作
反意表明	問い合せをした	①音声やマウス操作等による反意表明操作

【図４０】

ステータス	カラープリンタ	白黒プリンタ
動作状態	正常	正常
用紙残量	80％以上	80％以上
トナー残量	80％以上	80％以上
印刷済み文書	無し	[ユーザ Aの文書] [ユーザ Bの文書]

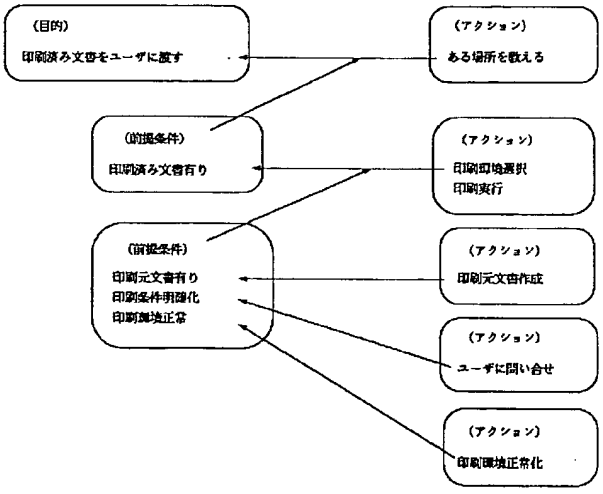
【図４２】



【図３７】

システムの目的	前提条件	プラン&アクション
ユーザの目的達成	システムの安定	①ユーザの目的理解 ②目的達成のプランニング ③実行
システムの安定	システムの異常	①システムの正常化
	実行中のJOB無し &電源OFF可能時間帯	①電源OFF
ユーザの目的理解	入力有り	①入力理解
印刷済み文書をユーザに渡す	印刷済み文書有り	①ある場所を教える
印刷済み文書有り	印刷元文書有り &印刷条件明確化 &印刷環境正常	①印刷環境選択 ②印刷実行
印刷元文書有り		①印刷元文書作成
印刷条件明確化		①ユーザに問い合せ
印刷環境正常	印刷環境の異常	①印刷環境正常化
ユーザの意志の取得	一定時間経過	①リプランニング

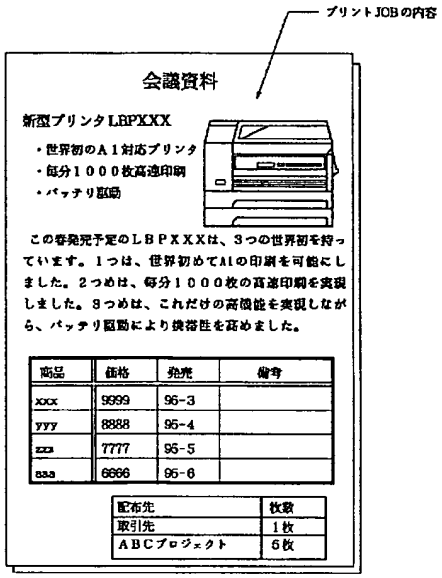
【図３８】



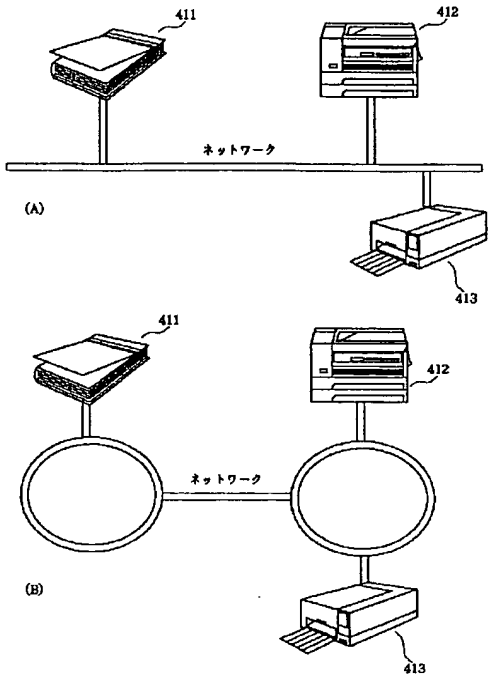
【図５３】

品質	項目	プリンタ A	プリンタ B
1	1文字あたりの印刷時間	100ms	200ms
	1文字あたりのトナー使用量	100mg	200mg
2	1文字あたりの印刷時間	200ms	400ms
	1文字あたりのトナー使用量	200mg	400mg
3	1文字あたりの印刷時間	300ms	600ms
	1文字あたりのトナー使用量	300mg	600mg
4	1文字あたりの印刷時間	400ms	800ms
	1文字あたりのトナー使用量	400mg	800mg
5	1文字あたりの印刷時間	500ms	1000ms
	1文字あたりのトナー使用量	500mg	1000mg

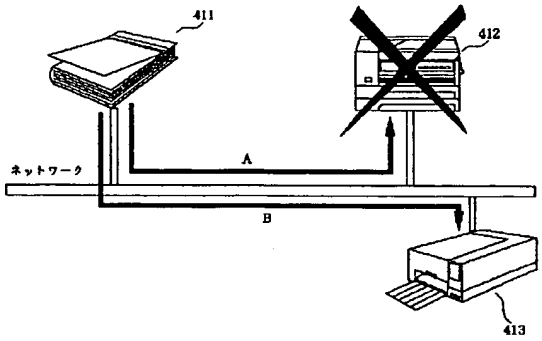
【図５９】



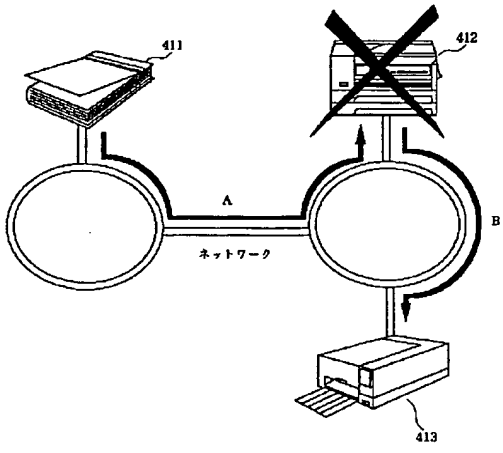
【図４１】



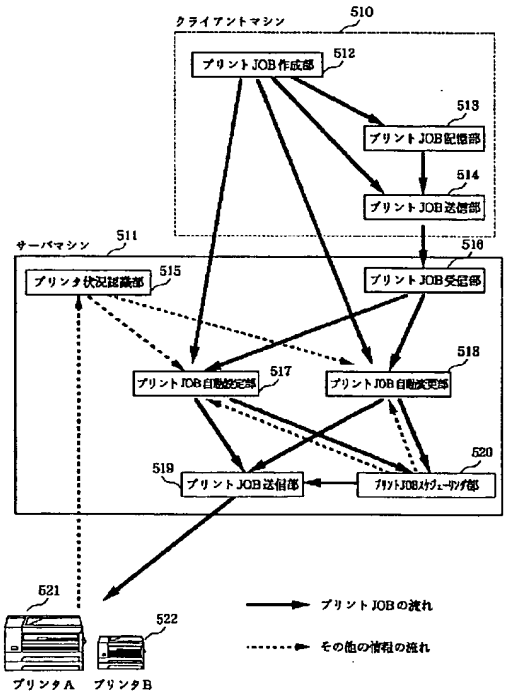
【図４６】



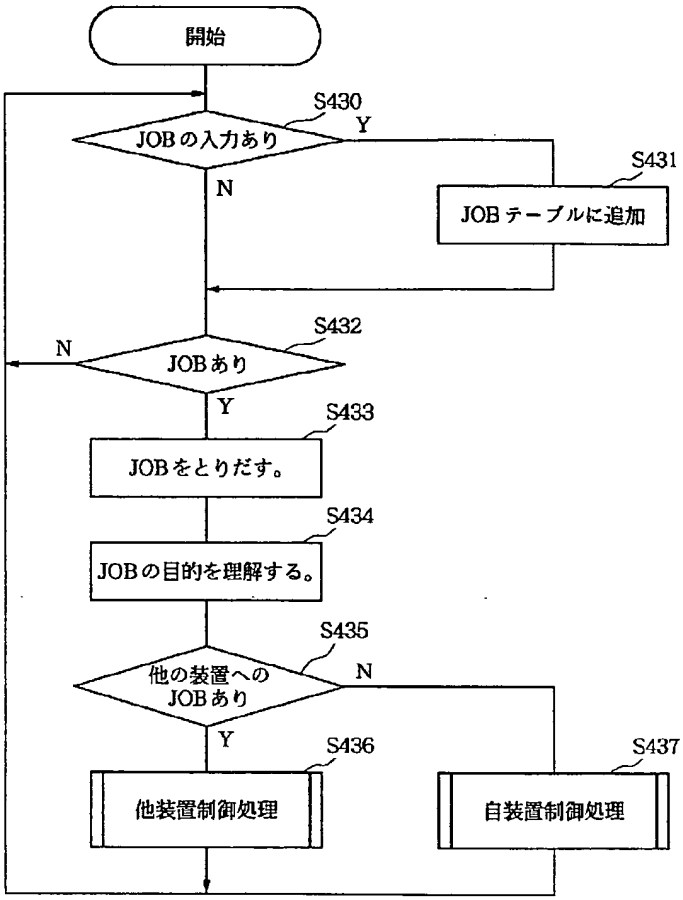
【図４７】



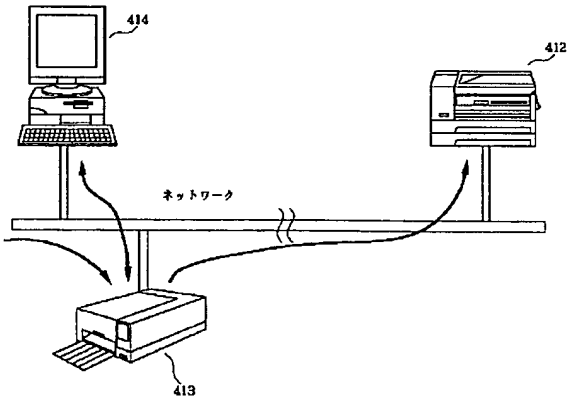
【図５１】



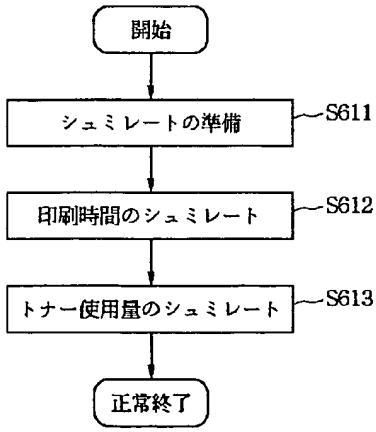
【図４３】


開始
S430
JOBの入力あり
Y
N
S431
JOBテーブルに追加
S432
JOBあり
N
Y
S433
JOBをとりだす。
S434
JOBの目的を理解する。
S435
他の装置への
JOBあり
N
Y
S436
他装置制御処理
S437
自装置制御処理

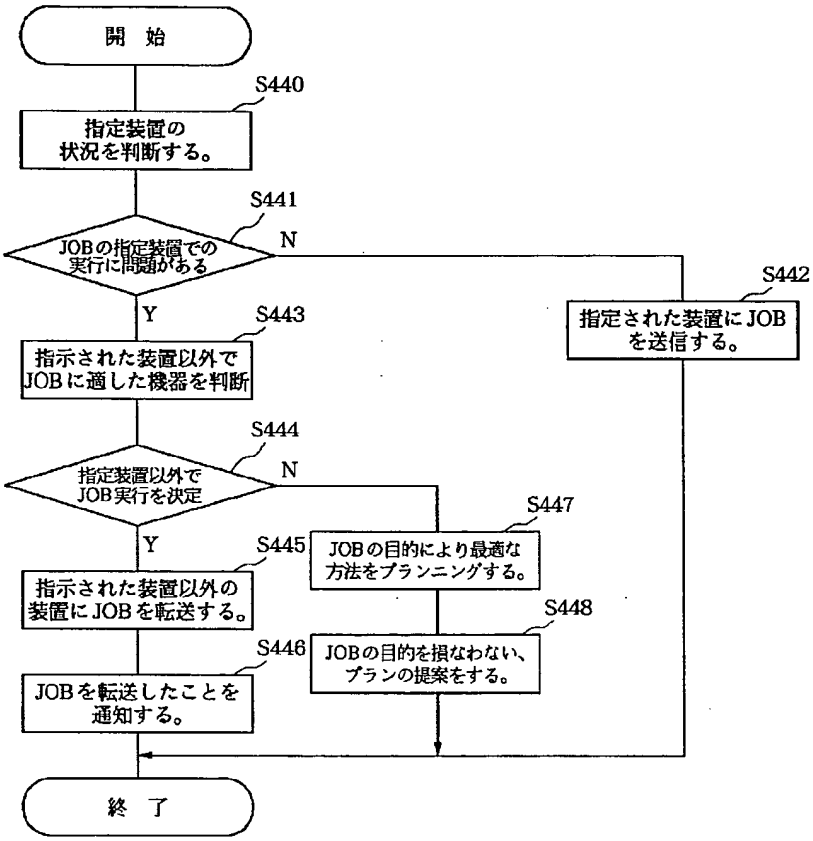
【図４８】


414
412
ネットワーク
413

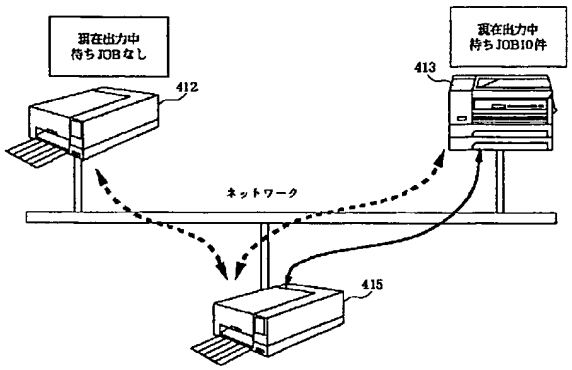
【図６１】


開始
シュミレートの準備
S611
印刷時間のシュミレート
S612
トナー使用量のシュミレート
S613
正常終了

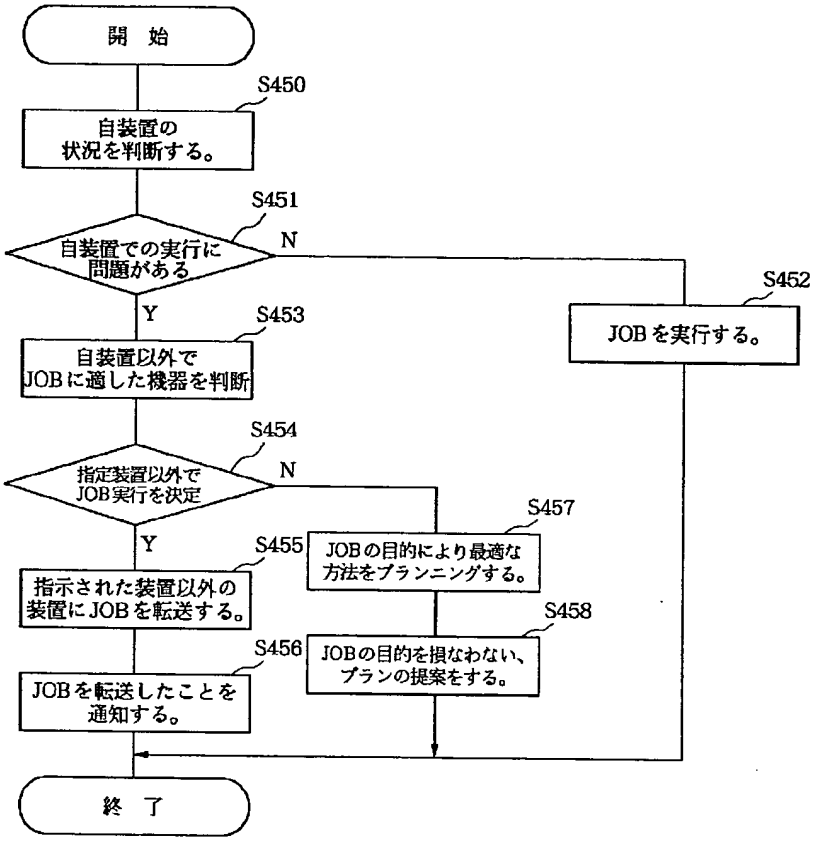
【図４４】


開　始
S440
指定装置の
状況を判断する。
S441
JOBの指定装置での
実行に問題がある
N
Y
S442
指定された装置にJOB
を送信する。
S443
指示された装置以外で
JOBに適した機器を判断
S444
指定装置以外で
JOB実行を決定
N
Y
S447
JOBの目的により最適な
方法をプランニングする。
S445
指示された装置以外の
装置にJOBを転送する。
S448
JOBの目的を損なわない、
プランの提案をする。
S446
JOBを転送したことを
通知する。
終　了

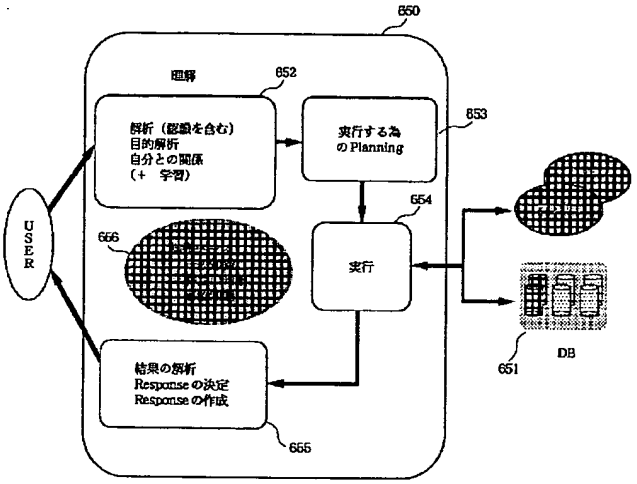
【図５０】


現在出力中
待ちJOBなし
412
現在出力中
待ちJOB10件
413
ネットワーク
415

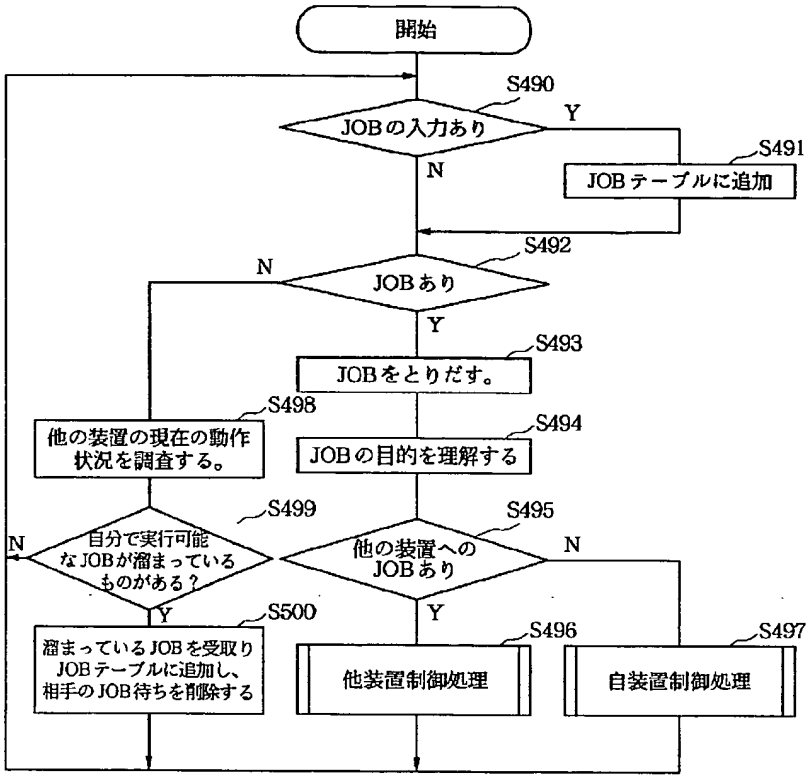
【図４５】


開　始
S450
自装置の
状況を判断する。
S451
自装置での実行に
問題がある
N
Y
S452
JOBを実行する。
S453
自装置以外で
JOBに適した機器を判断
S454
指定装置以外で
JOB実行を決定
N
Y
S457
JOBの目的により最適な
方法をプランニングする。
S455
指示された装置以外の
装置にJOBを転送する。
S458
JOBの目的を損なわない、
プランの提案をする。
S456
JOBを転送したことを
通知する。
終　了

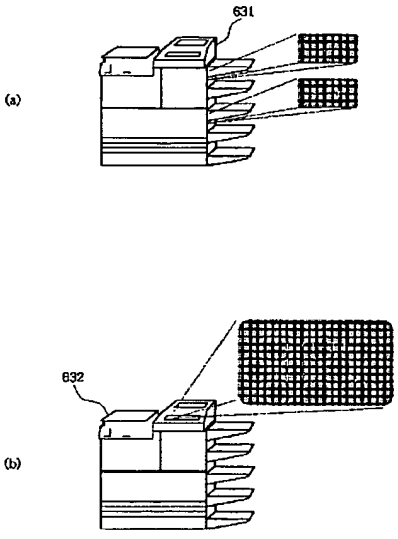
【図６５】


650
理解
652
解析（認識を含む）
目的解析
自分との関係
（＋　学習）
実行する為
のPlanning
653
654
666
実行
USER
DB
651
結果の解析
Response の決定
Response の作成
665

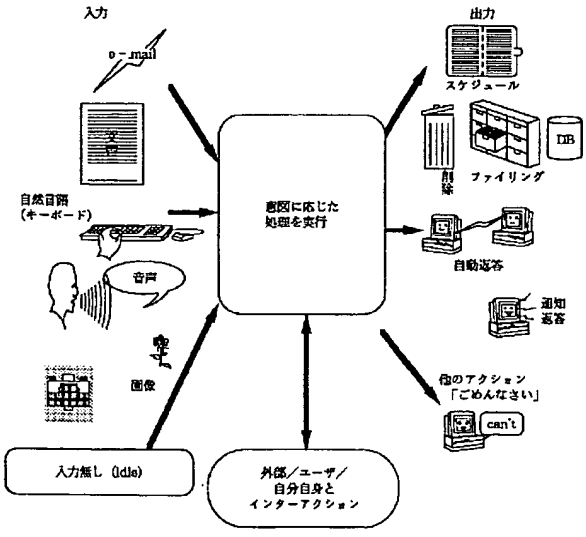
【図４９】


開始
S490
JOBの入力あり
Y
N
S491
JOBテーブルに追加
S492
N
JOBあり
Y
S493
JOBをとりだす。
S498
他の装置の現在の動作状況を調査する。
S494
JOBの目的を理解する
S499
N
自分で実行可能なJOBが溜まっているものがある？
S495
他の装置へのJOBあり
N
Y
Y
S500
溜まっているJOBを受取りJOBテーブルに追加し、相手のJOB待ちを削除する
S496
他装置制御処理
S497
自装置制御処理

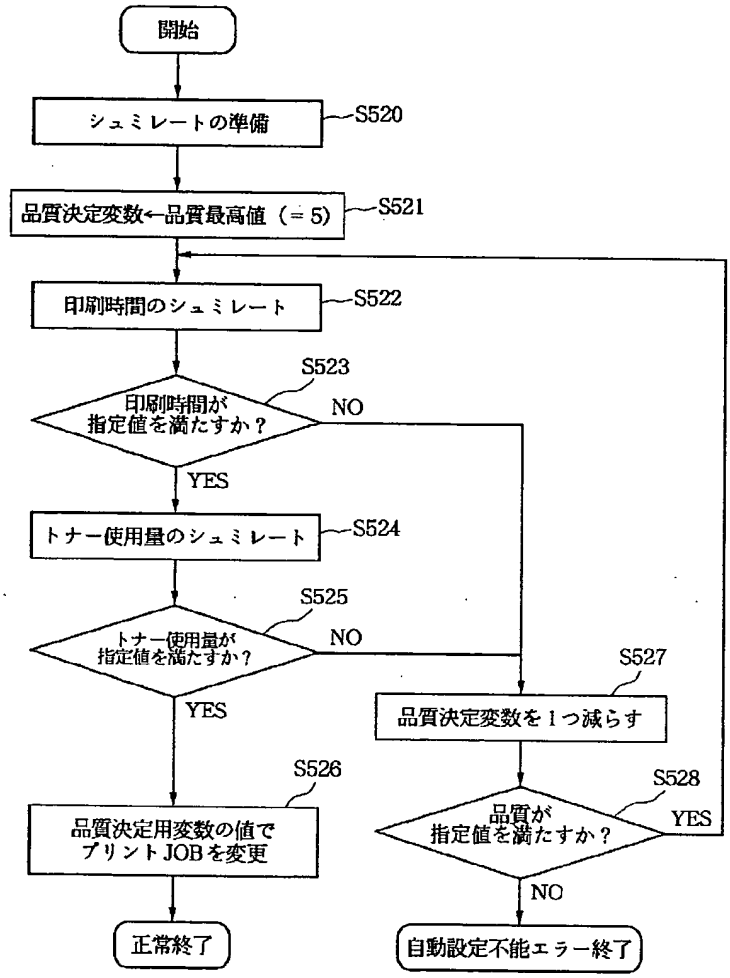
【図６３】


631
(a)
632
(b)

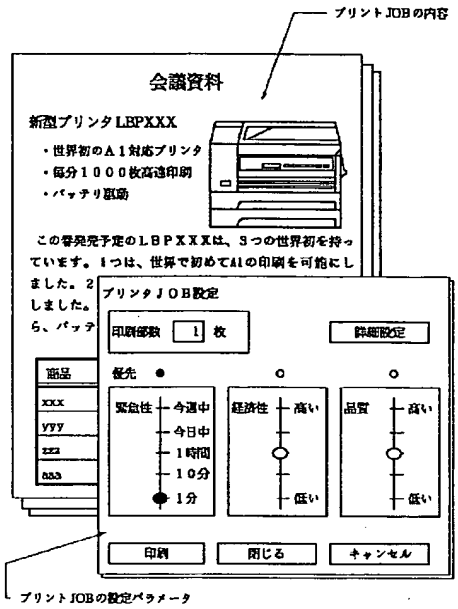
【図６６】


入力
e-mail
文字
自然言語
(キーボード)
音声
画像
入力無し (idle)
意図に応じた処理を実行
外部／ユーザ／自分自身とインターアクション
出力
スケジュール
削除
DB
ファイリング
自動返答
通知返答
他のアクション「ごめんなさい」
can't

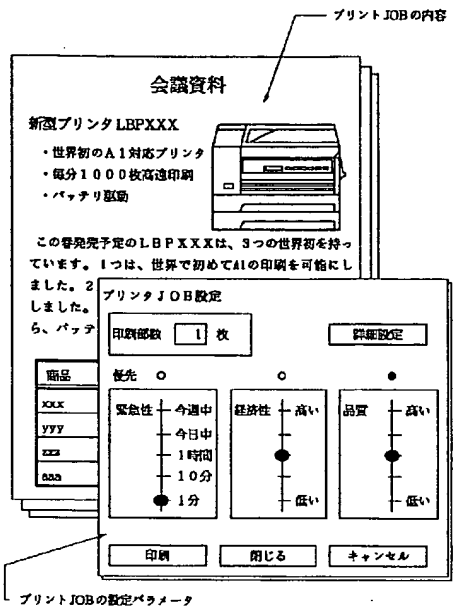
【図５２】


開始
シュミレートの準備
S520
品質決定変数←品質最高値（＝5）
S521
印刷時間のシュミレート
S522
S523
印刷時間が
指定値を満たすか？
NO
YES
トナー使用量のシュミレート
S524
S525
トナー使用量が
指定値を満たすか？
NO
YES
S527
品質決定変数を１つ減らす
S526
品質決定用変数の値で
プリントJOBを変更
S528
品質が
指定値を満たすか？
YES
NO
正常終了
自動設定不能エラー終了

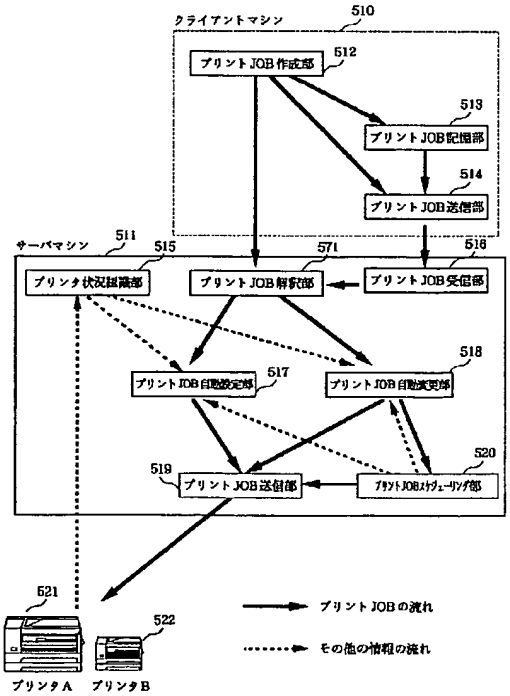
【図５４】



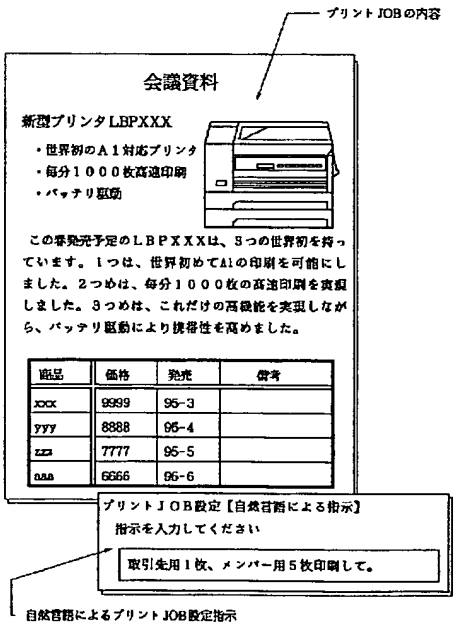
【図５６】



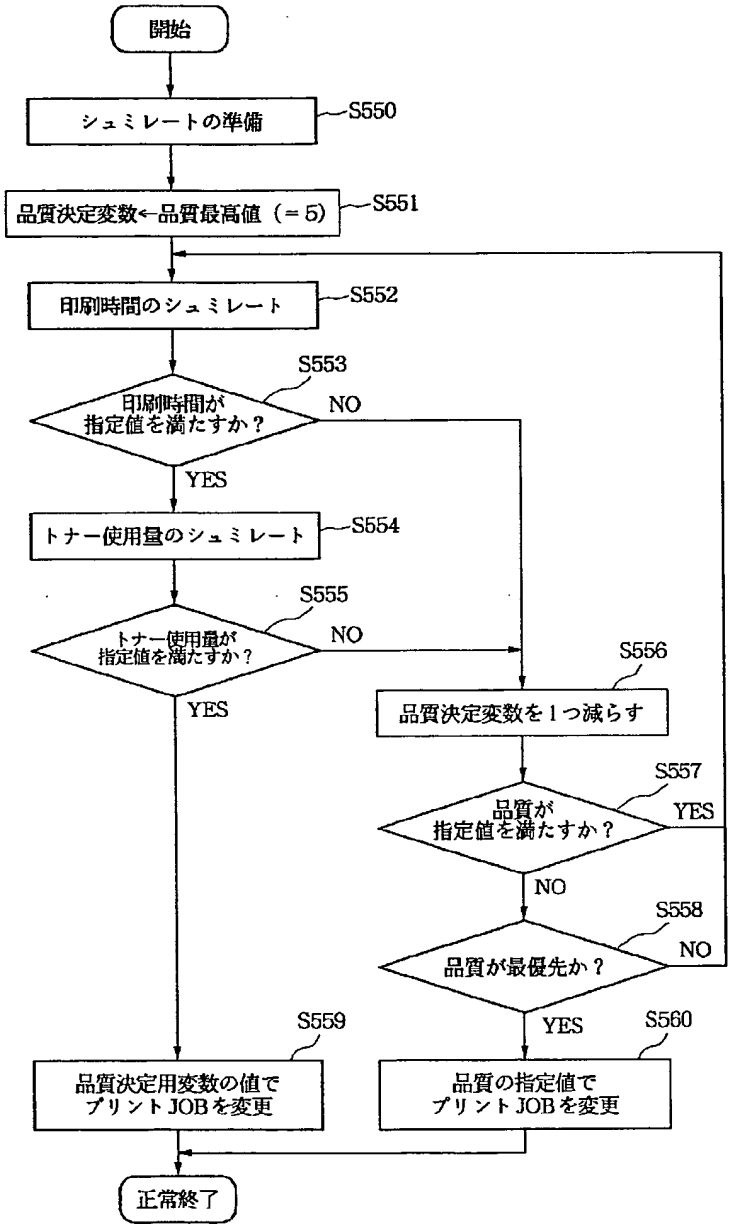
【図５７】



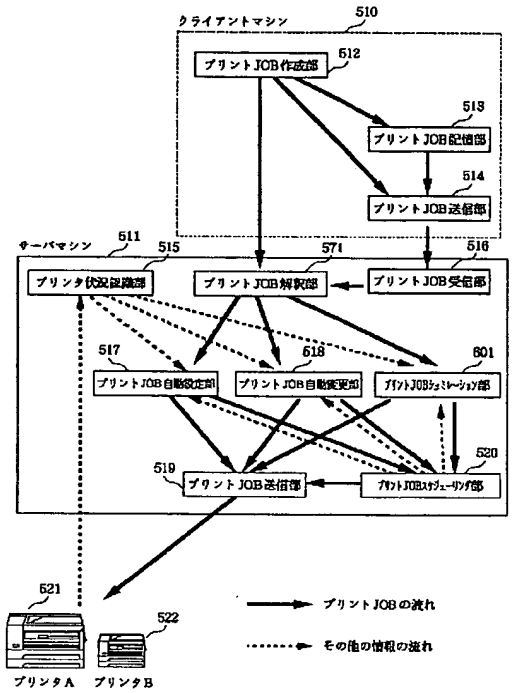
【図５８】



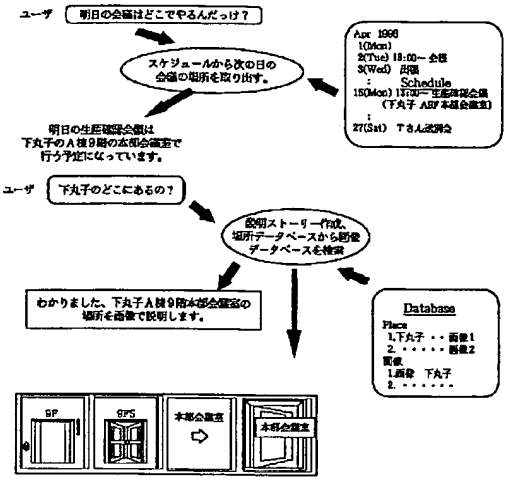
【図５５】


開始
シュミレートの準備
S550
品質決定変数←品質最高値（＝5）
S551
印刷時間のシュミレート
S552
S553
印刷時間が
指定値を満たすか？
NO
YES
トナー使用量のシュミレート
S554
S555
トナー使用量が
指定値を満たすか？
NO
YES
S556
品質決定変数を１つ減らす
S557
品質が
指定値を満たすか？
YES
NO
S558
品質が最優先か？
NO
YES
S559
品質決定用変数の値で
プリントJOBを変更
S560
品質の指定値で
プリントJOBを変更
正常終了

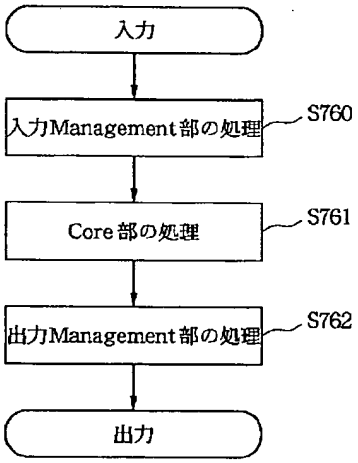
【図６０】



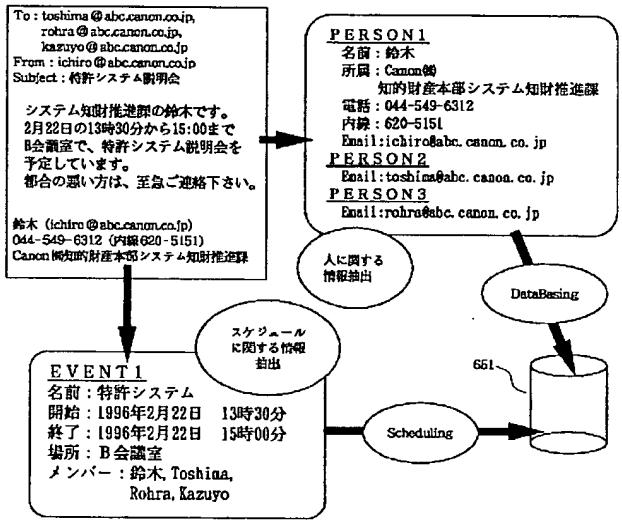
【図７０】



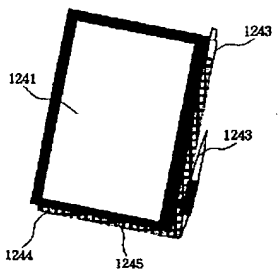
【図７６】



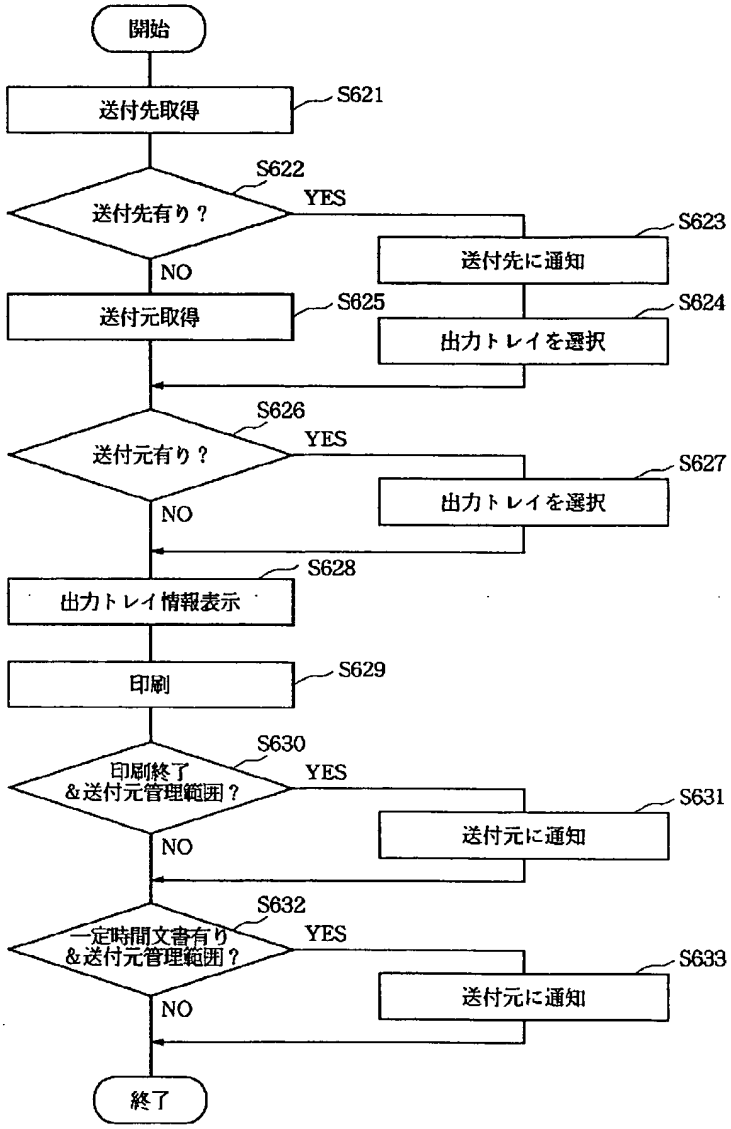
【図６７】



【図１２４】



【図６２】



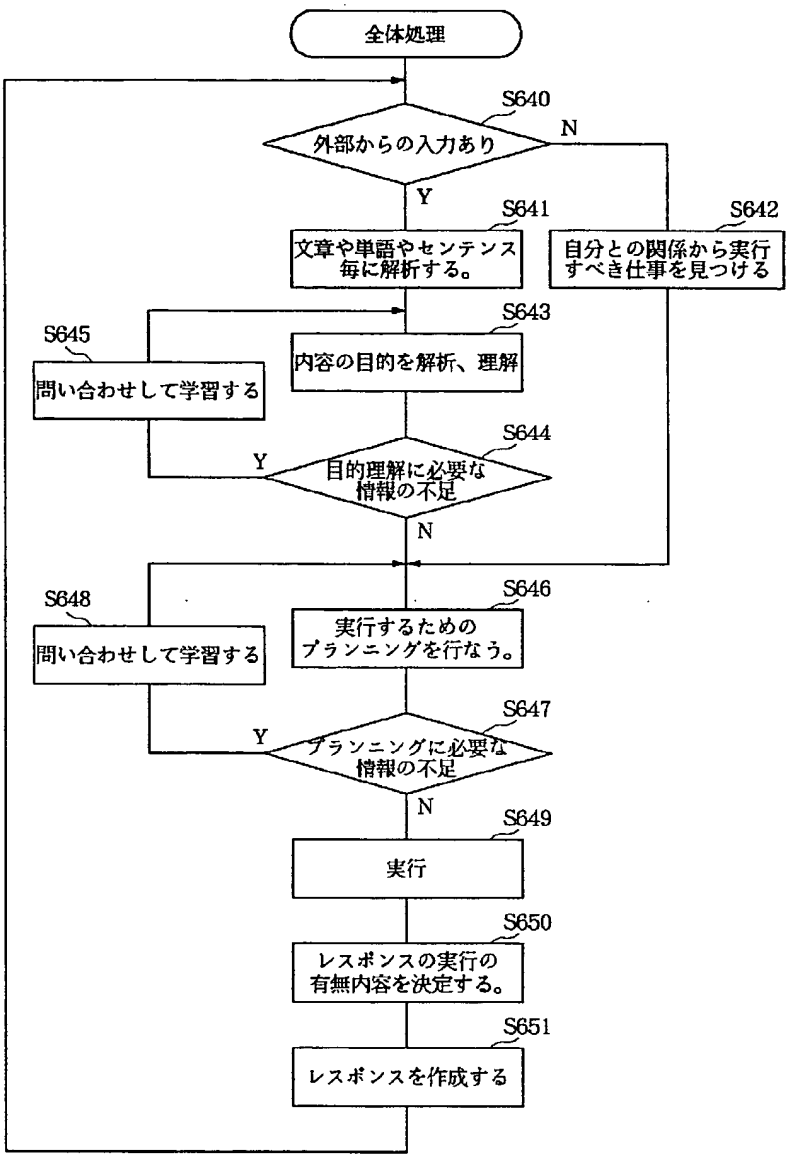
【図８９】

文字列	組合	Role	Action
NotifyMe： NotifyHim： File： Keywords： …	通知方法 通知方法 directory名 Keyword …	送信者への通知方法 受信者への通知方法 ファイリング場所 index …	送信者に通知する 受信者に通知する ファイリングする indexを作成する …

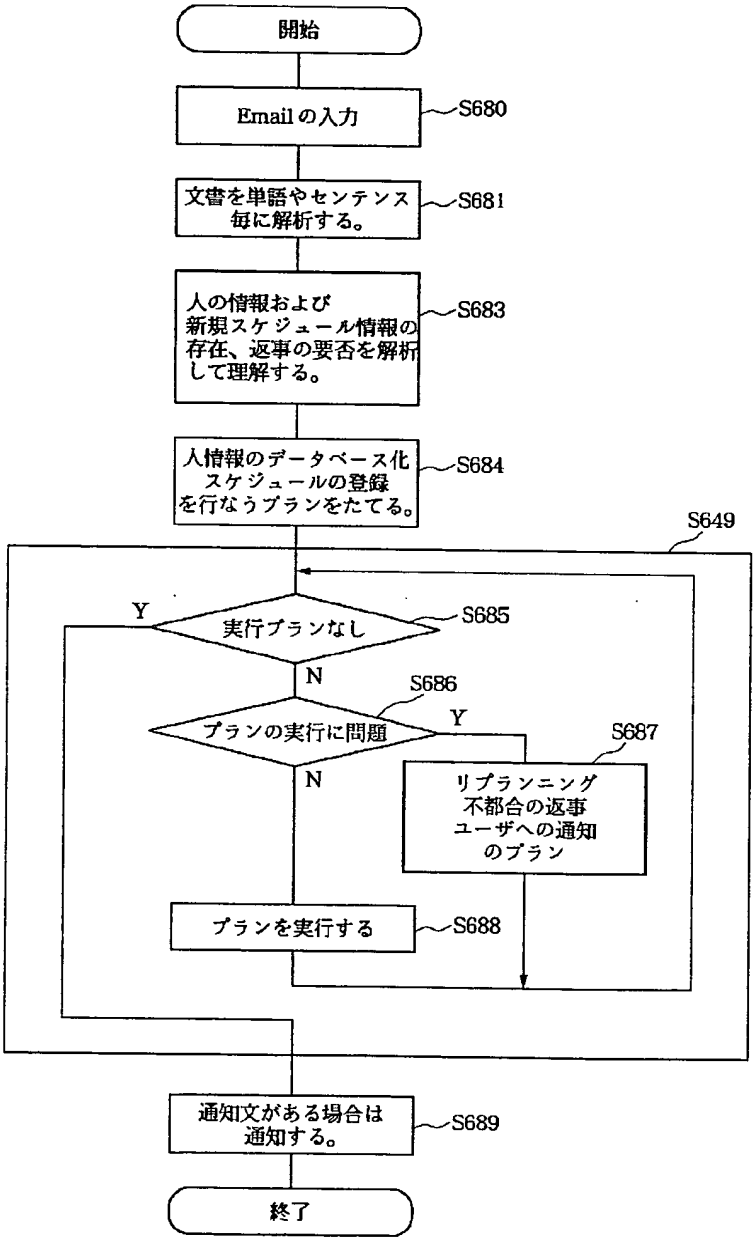
【図１２７】

JOBの種類	条件	事前通知の有無
情報受信		無
情報発信	勤務時間内	有
ステータス正常		無
ステータス異常		有
その他		有

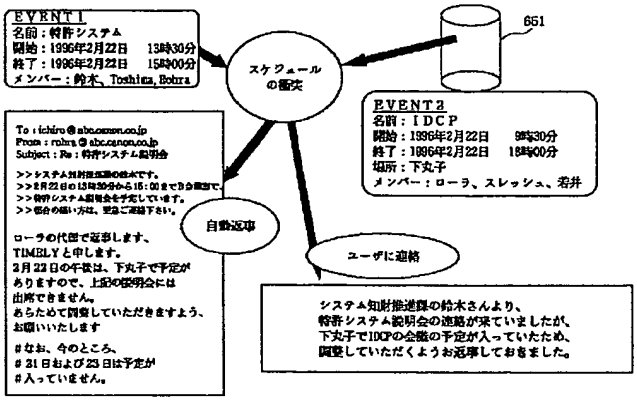
【図６４】


全体処理
S640
外部からの入力あり
N
Y
S641
文章や単語やセンテンス毎に解析する。
S642
自分との関係から実行すべき仕事を見つける
S643
内容の目的を解析、理解
S645
問い合わせして学習する
S644
Y
目的理解に必要な情報の不足
N
S646
実行するためのプランニングを行なう。
S648
問い合わせして学習する
S647
Y
プランニングに必要な情報の不足
N
S649
実行
S650
レスポンスの実行の有無内容を決定する。
S651
レスポンスを作成する

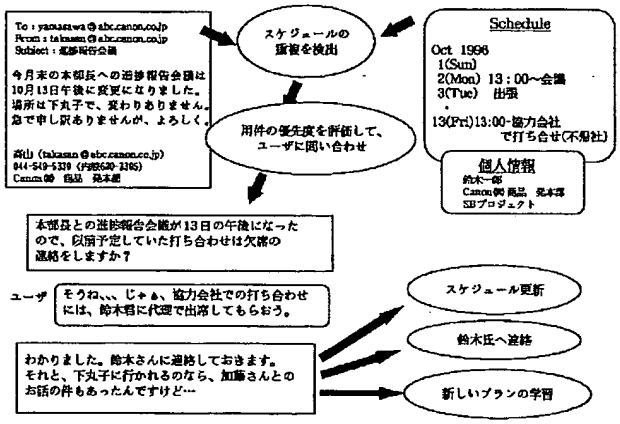
【図６８】


開始
Emailの入力
S680
文書を単語やセンテンス毎に解析する。
S681
人の情報および新規スケジュール情報の存在、返事の要否を解析して理解する。
S683
人情報のデータベース化スケジュールの登録を行なうプランをたてる。
S684
S649
Y
実行プランなし
S685
N
S686
プランの実行に問題
Y
S687
N
リプランニング不都合の返事ユーザへの通知のプラン
プランを実行する
S688
通知文がある場合は通知する。
S689
終了

【図６９】



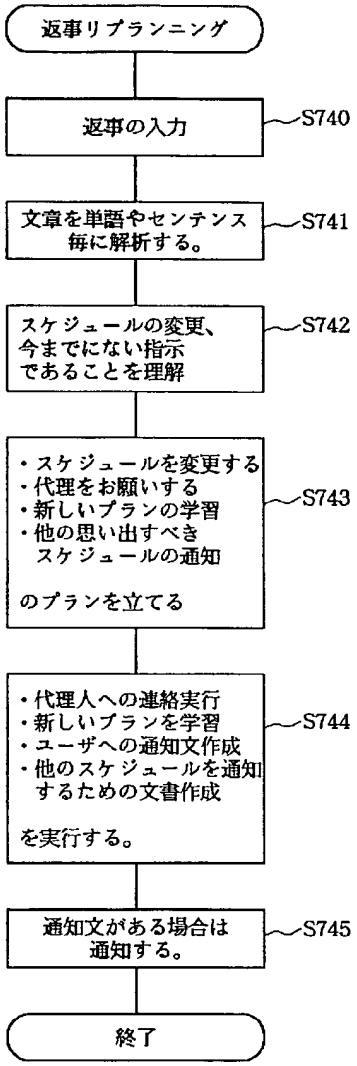
【図７２】



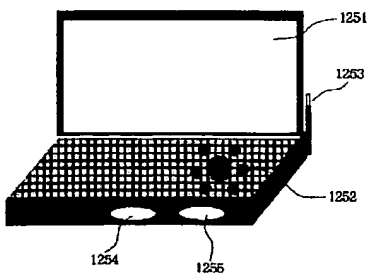
【図８８】

文字列	概念	Role	condition
To：	会社名or氏名	受信会社名or氏名	
From：	会社名or氏名	送信会社名or氏名	
Attn：	氏名	受信者氏名	
Receiver：	氏名	受信氏名	
Sender：	氏名	送信者氏名	
Date：	日付	送信日付	文書頭
Tel：	電話番号	送信者電話番号	送信者column
Tel：	電話番号	送信者電話番号	受信者column
Fax：	Fax番号	送信者Fax番号	送信者column
Fax：	Fax番号	受信者Fax番号…	受信者column
…	…		

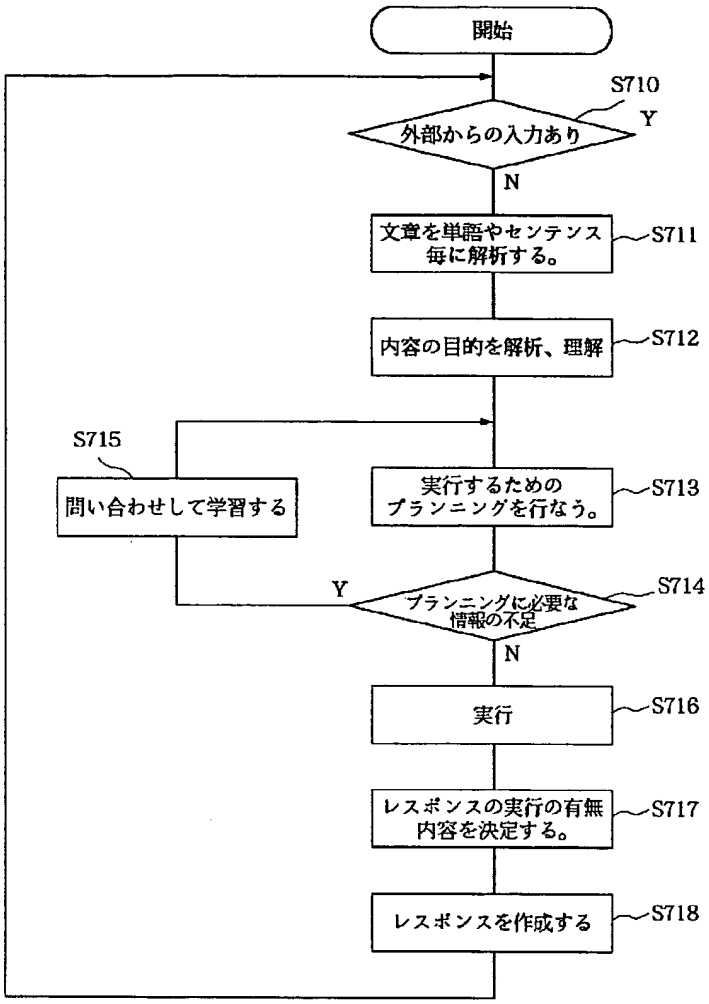
【図７４】



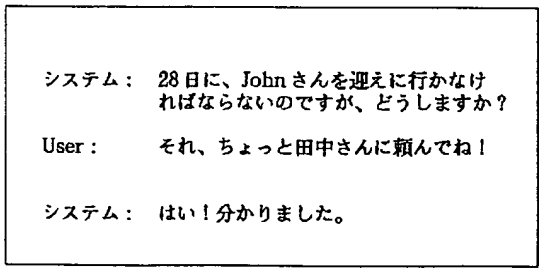
【図１２５】



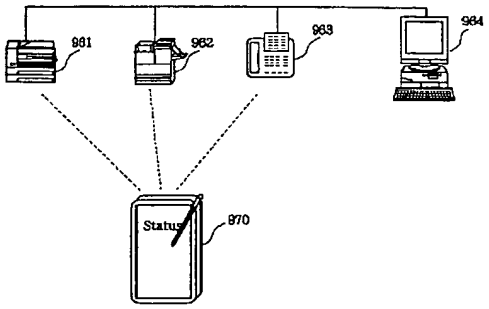
【図７１】


開始
S710
外部からの入力あり
Y
N
文章を単語やセンテンス毎に解析する。
S711
内容の目的を解析、理解
S712
S715
問い合わせして学習する
実行するためのプランニングを行なう。
S713
Y
プランニングに必要な情報の不足
S714
N
実行
S716
レスポンスの実行の有無内容を決定する。
S717
レスポンスを作成する
S718

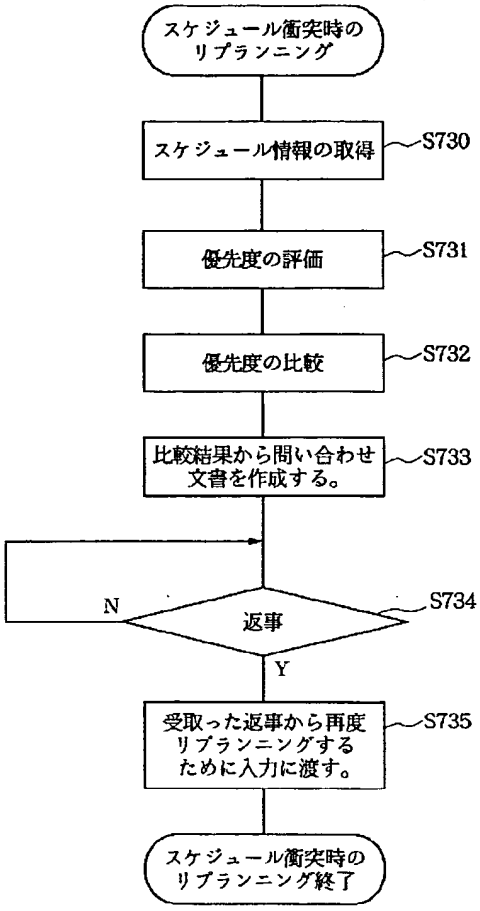
【図９３】


システム：　28日に、Johnさんを迎えに行かなければならないのですが、どうしますか？
User：　それ、ちょっと田中さんに頼んでね！
システム：　はい！分かりました。

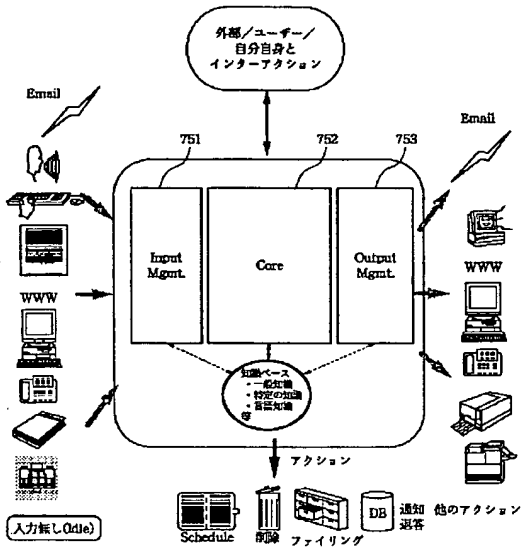
【図９７】


961
962
963
964
Status
970

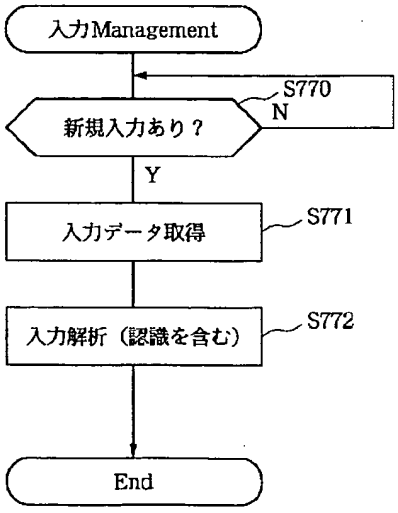
【図７３】


スケジュール衝突時の
リプランニング
スケジュール情報の取得
S730
優先度の評価
S731
優先度の比較
S732
比較結果から問い合わせ
文書を作成する。
S733
返事
S734
N
Y
受取った返事から再度
リプランニングする
ために入力に渡す。
S735
スケジュール衝突時の
リプランニング終了

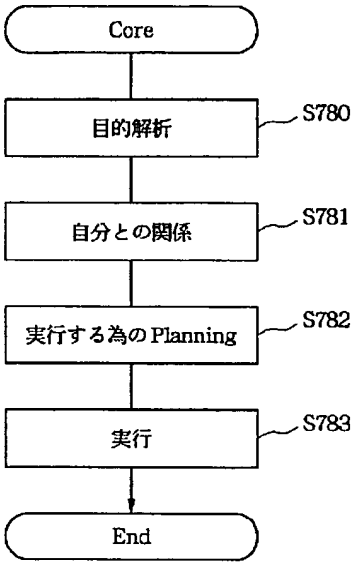
【図７５】


外部／ユーザー／
自分自身と
インターアクション
Email
751
752
753
Email
Input
Mgmt.
Core
Output
Mgmt.
WWW
WWW
アクション
入力振し(Idle)
Schedule
削除
ファイリング
DB
通知
返答
他のアクション

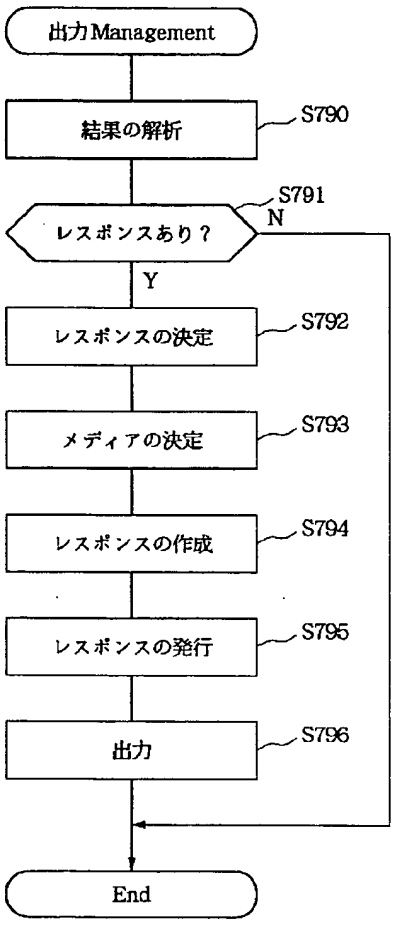
【図７７】


入力Management
S770
N
新規入力あり？
Y
入力データ取得
S771
入力解析（認識を含む）
S772
End

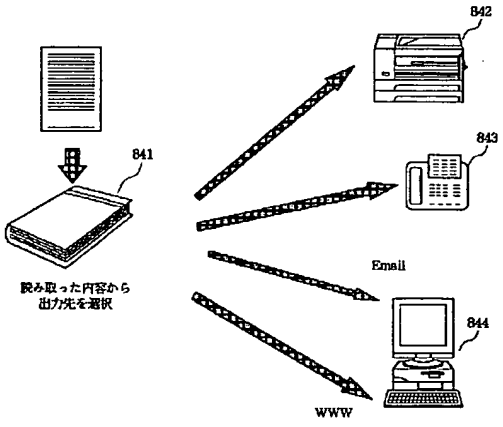
【図７８】



【図７９】



【図８４】



【図９４】

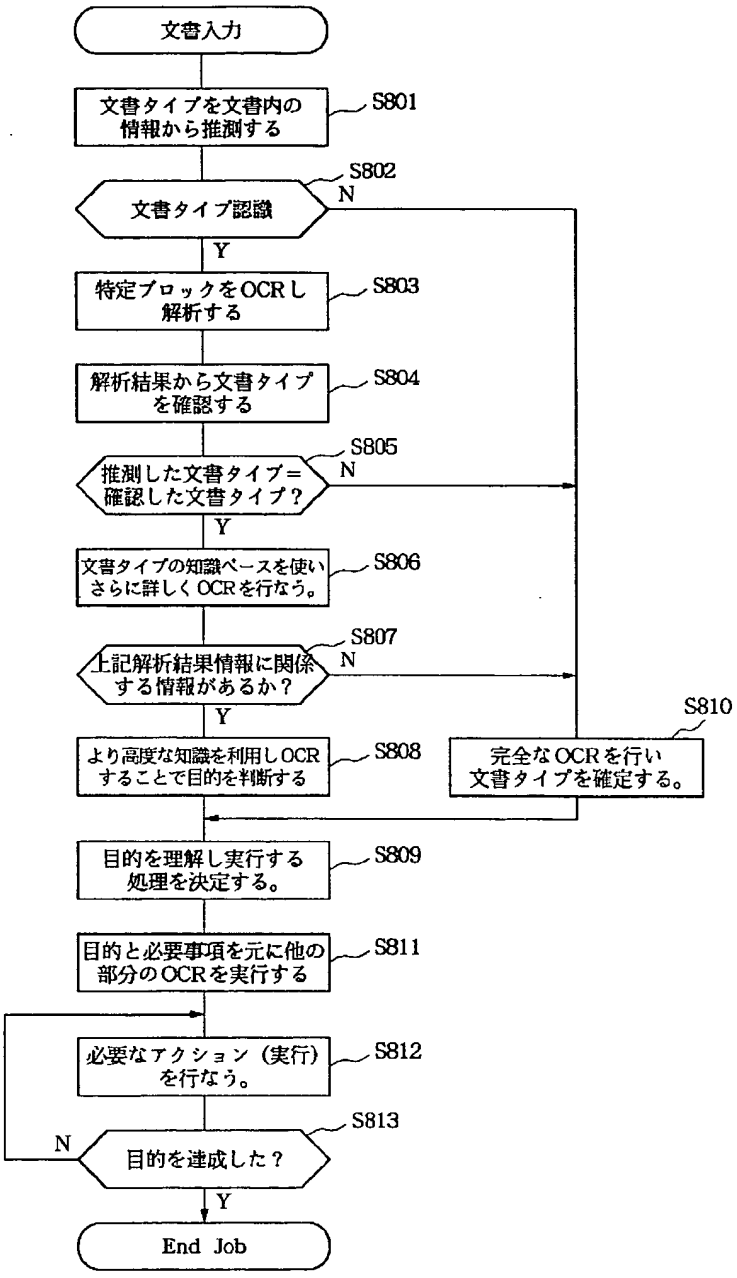
Subject : John's visit
Date : Fri, 23 Nov 1996 17 : 57 : 22 + 0900
From : IDCP < IDCP @ abc.canon.co.jp >
Reply − To : IDCP < IDCP @ abc.canon.co.jp >
Organization : Canin Inc.
To : tanaka @ dos.canon.co.jp
References :

Johnさんが横浜に28日に到着します。お迎えなどのめんどう見て頂けないでしょうかとローラからのお願いです。

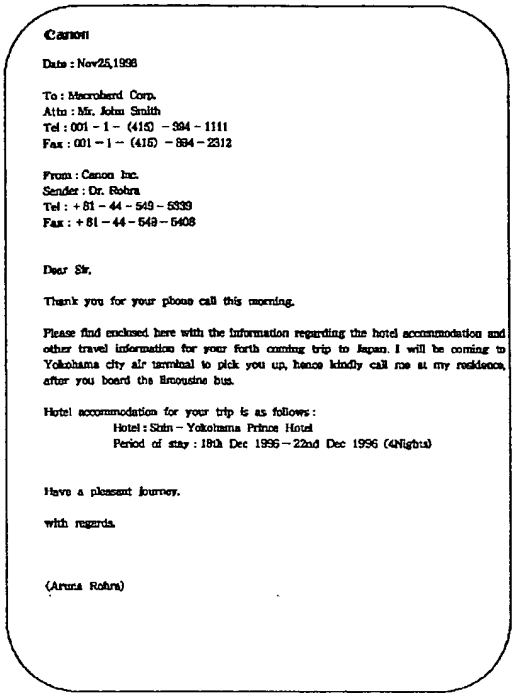
JohnさんからのFax.参考まで添付しております。
宜しくお願い足します。

− your favourite friend ! ; −)

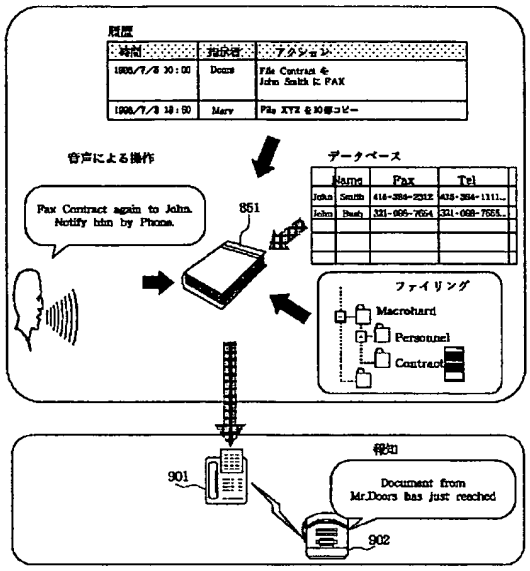
【図８０】


文書入力
文書タイプを文書内の情報から推測する
S801
文書タイプ認識
S802
N
Y
特定ブロックをOCRし解析する
S803
解析結果から文書タイプを確認する
S804
推測した文書タイプ＝確認した文書タイプ？
S805
N
Y
文書タイプの知識ベースを使いさらに詳しくOCRを行なう。
S806
上記解析結果情報に関係する情報があるか？
S807
N
Y
より高度な知識を利用しOCRすることで目的を判断する
S808
完全なOCRを行い文書タイプを確定する。
S810
目的を理解し実行する処理を決定する。
S809
目的と必要事項を元に他の部分のOCRを実行する
S811
必要なアクション（実行）を行なう。
S812
目的を達成した？
S813
N
Y
End Job

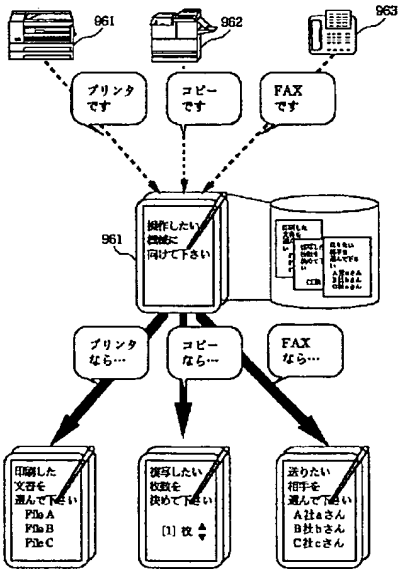
【図８１】



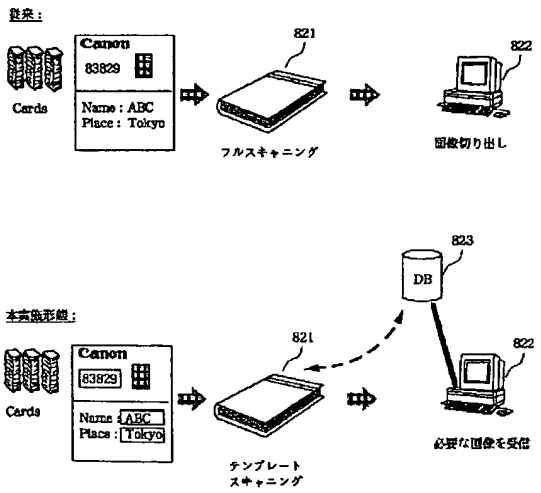
【図９０】



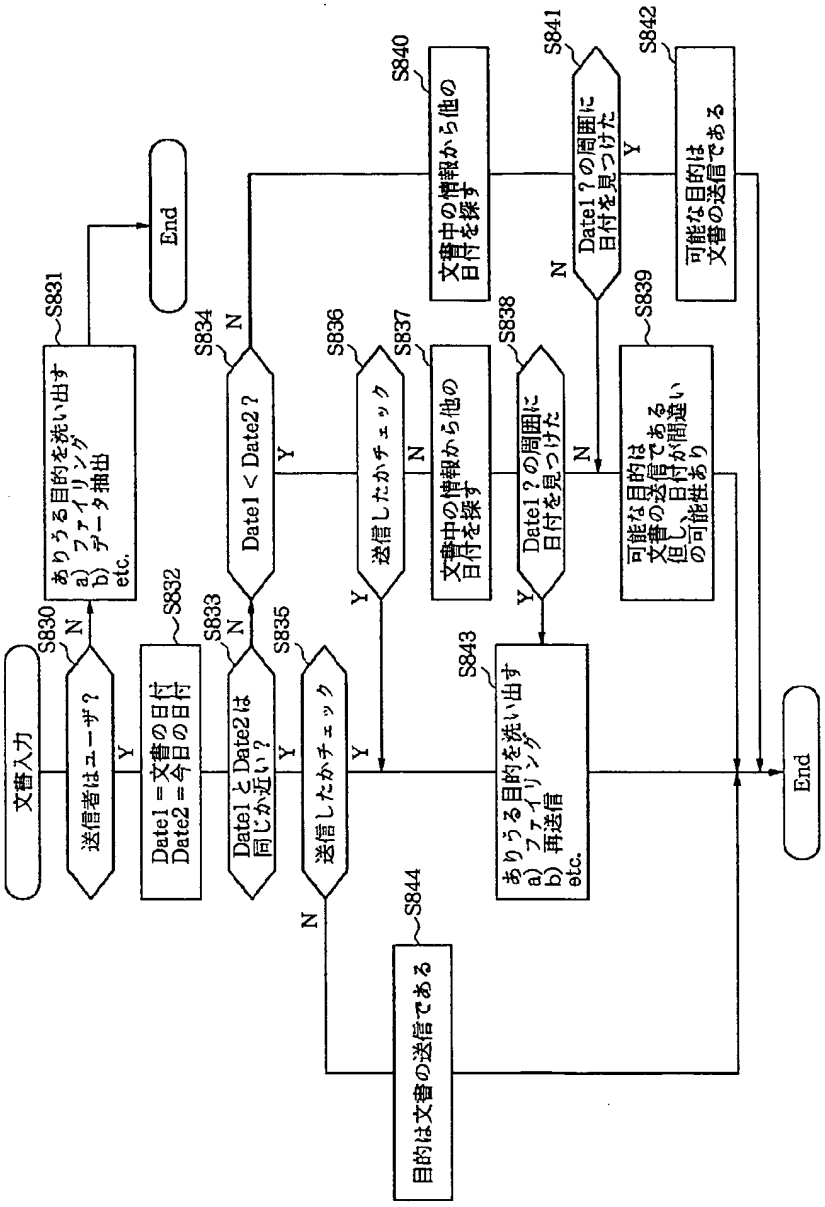
【図９８】



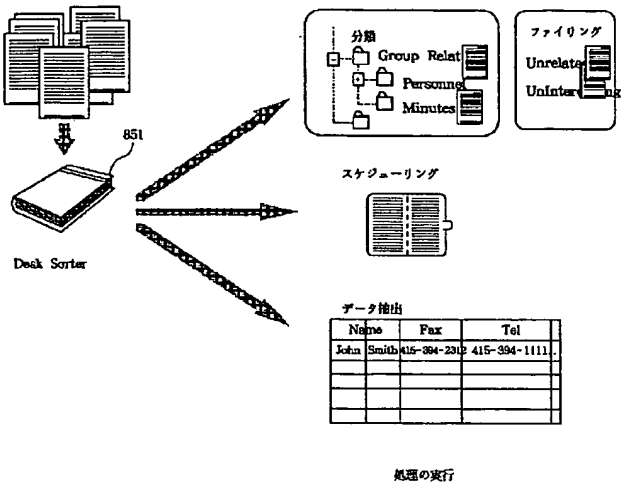
【図８２】



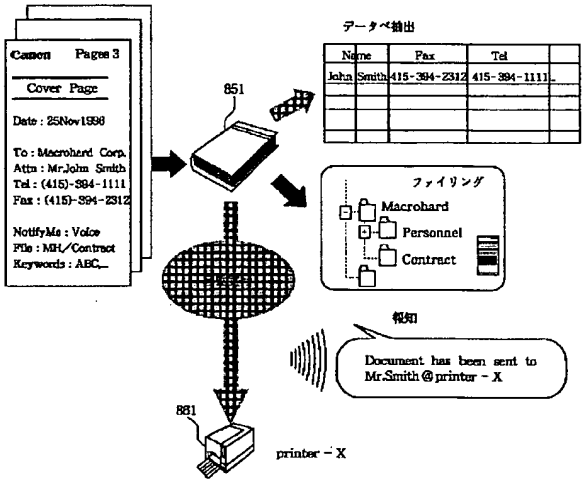
【図８３】


文書入力
送信者はユーザ？
Y
N
S830
ありうる目的を洗い出す
a) ファイリング
b) データ抽出
etc.
S831
End
Date1＝文書の日付
Date2＝今日の日付
S832
Date1とDate2は
同じか近い？
S833
Y
N
Date1 < Date2？
S834
Y
N
送信したかチェック
S835
Y
N
目的は文書の送信である
S844
文書中の情報から他の
日付を探す
S836
S837
Y
N
Date1？の周囲に
日付を見つけた
S838
Y
N
可能な目的は
文書の送信である
但し、日付が間違い
の可能性あり
S839
Date1？の周囲に
日付を見つけた
S841
Y
N
可能な目的は
文書の送信である
S842
ありうる目的を洗い出す
a) ファイリング
b) 再送信
etc.
S843
End

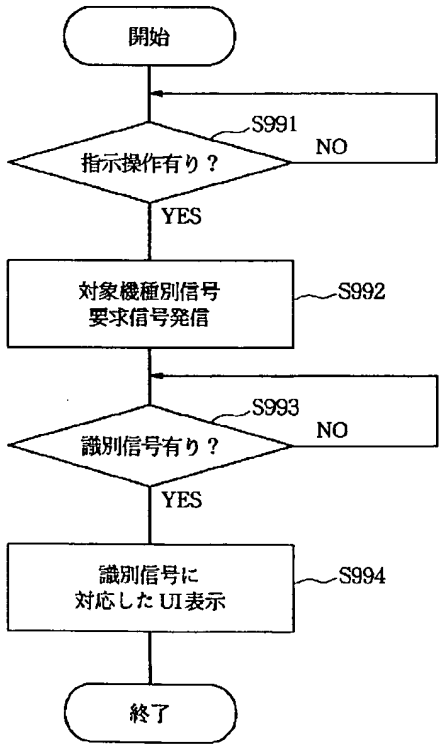
【図８５】


851
Desk Sorter
分類
Group
Relat
Personnel
Minutes
ファイリング
Unrelate
UnInter
スケジューリング
データ抽出
Name
Fax
Tel
John
Smith
415-394-2312
415-394-1111
処理の実行

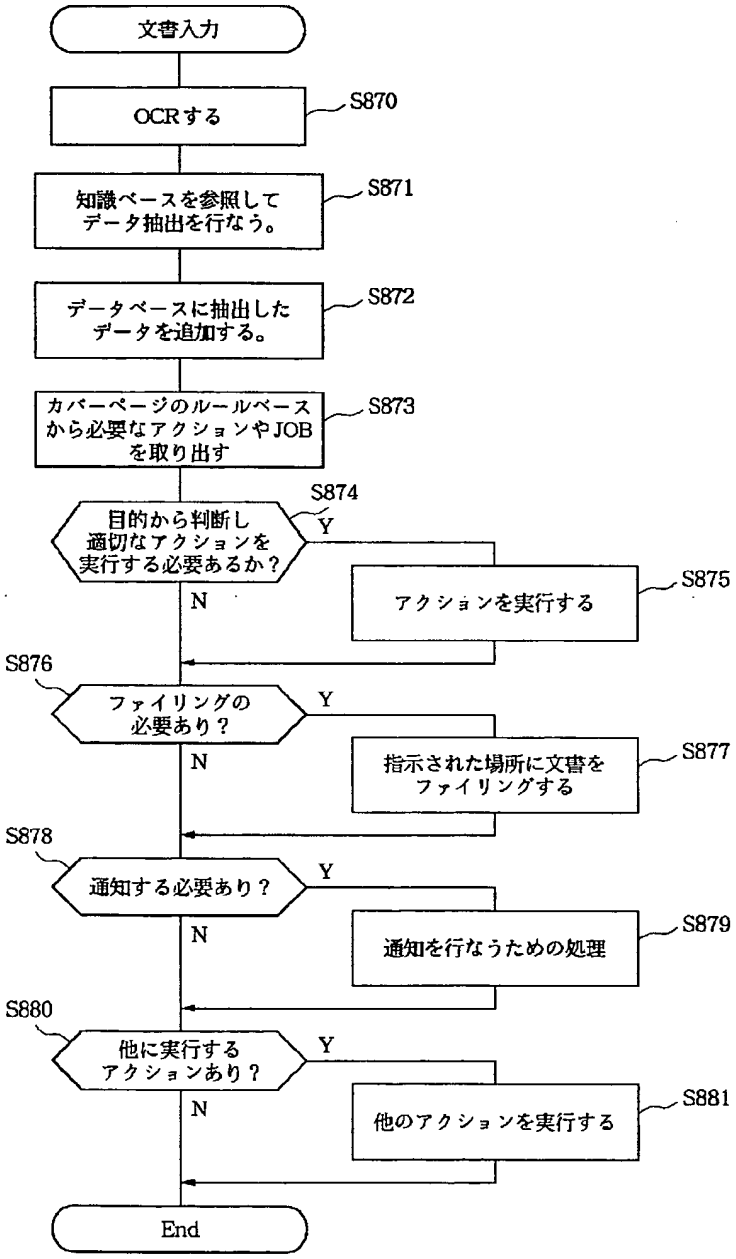
【図８６】


Canon Pages 3
Cover Page
Date : 25Nov1998
To : Macrohard Corp.
Attn : Mr.John Smith
Tel : (415)-394-1111
Fax : (415)-394-2312
NotifyMe : Voice
File : MH/Contract
Keywords : ABC...
851
データベ抽出
Name
Fax
Tel
John
Smith
415-394-2312
415-394-1111
ファイリング
Macrohard
Personnel
Contract
報知
Document has been sent to Mr.Smith@printer - X
881
printer - X

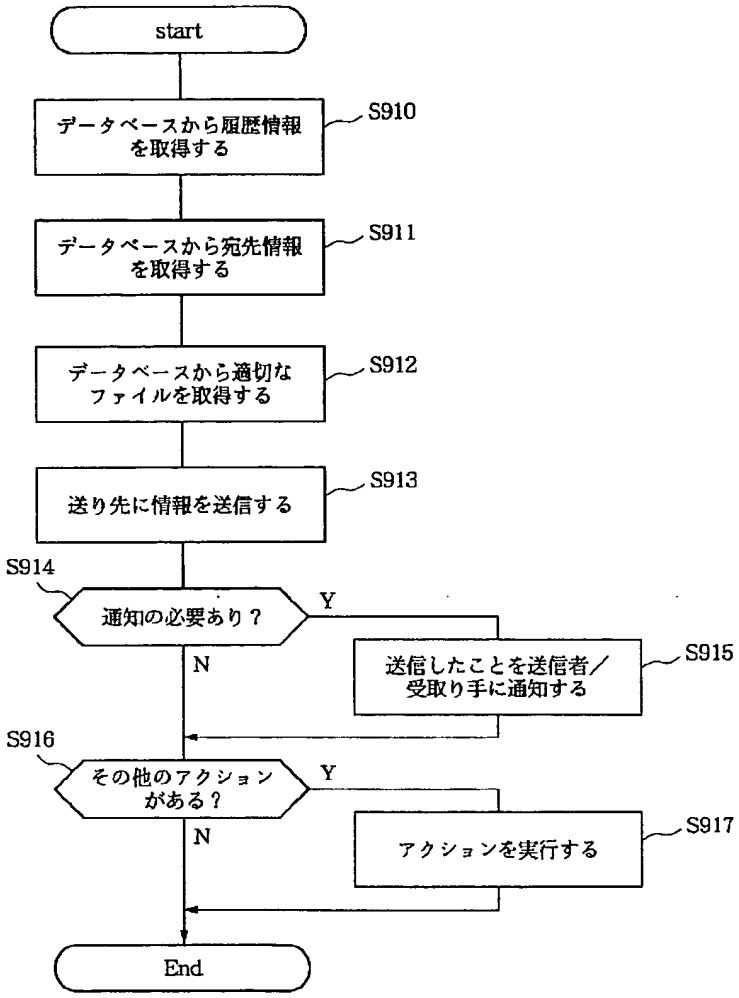
【図９９】


開始
S991
指示操作有り？
NO
YES
対象機種別信号
要求信号発信
S992
S993
識別信号有り？
NO
YES
識別信号に
対応したUI表示
S994
終了

【図８７】


文書入力
OCRする
S870
知識ベースを参照して
データ抽出を行なう。
S871
データベースに抽出した
データを追加する。
S872
カバーページのルールベース
から必要なアクションやJOB
を取り出す
S873
S874
目的から判断し
適切なアクションを
実行する必要あるか？
Y
N
アクションを実行する
S875
S876
ファイリングの
必要あり？
Y
N
指示された場所に文書を
ファイリングする
S877
S878
通知する必要あり？
Y
N
通知を行なうための処理
S879
S880
他に実行する
アクションあり？
Y
N
他のアクションを実行する
S881
End

【図９１】


start
データベースから履歴情報を取得する
S910
データベースから宛先情報を取得する
S911
データベースから適切なファイルを取得する
S912
送り先に情報を送信する
S913
S914
通知の必要あり？
Y
N
送信したことを送信者／受取り手に通知する
S915
S916
その他のアクションがある？
Y
N
アクションを実行する
S917
End

【図９２】

Date : Nov 22, 1996

To : Canon Inc.　　From : Macrohard Corp.
Attn : Dr. Aruna Rohra　　Sender : Mr. John Smith
Tel : + 81 - 44 - 549 - 5338　　Tel : (415) - 394 - 1111
Fax : + 81 - 44 - 549 - 5408　　Fax : (415) - 394 - 2312

Dear Dr. Rohra,

Thank you for your fax.

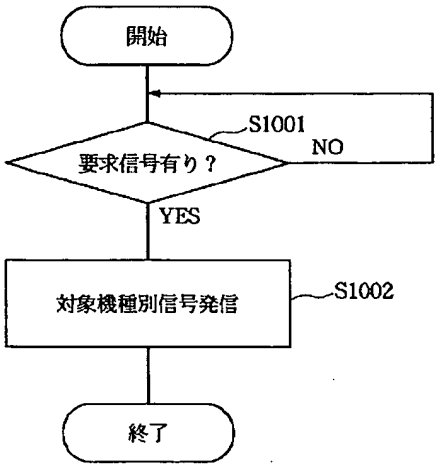
I will be reaching Yokohama at 3.00 pm on 28th November.
Since I am coming for the first time to Yokohama and as I am not very fluent in Japanese, I would be grateful if you could kindly meet me at the station.

Thanking you,

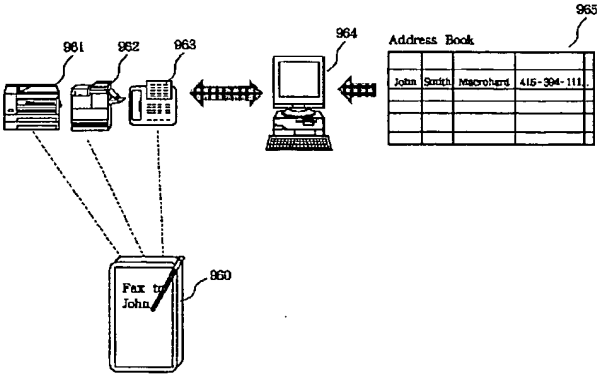
yours sincerely,

John Smith

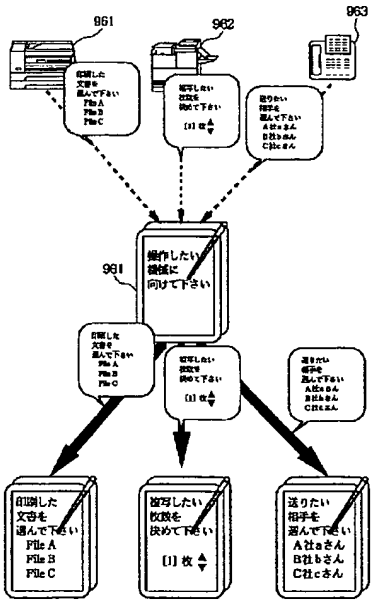
【図１００】



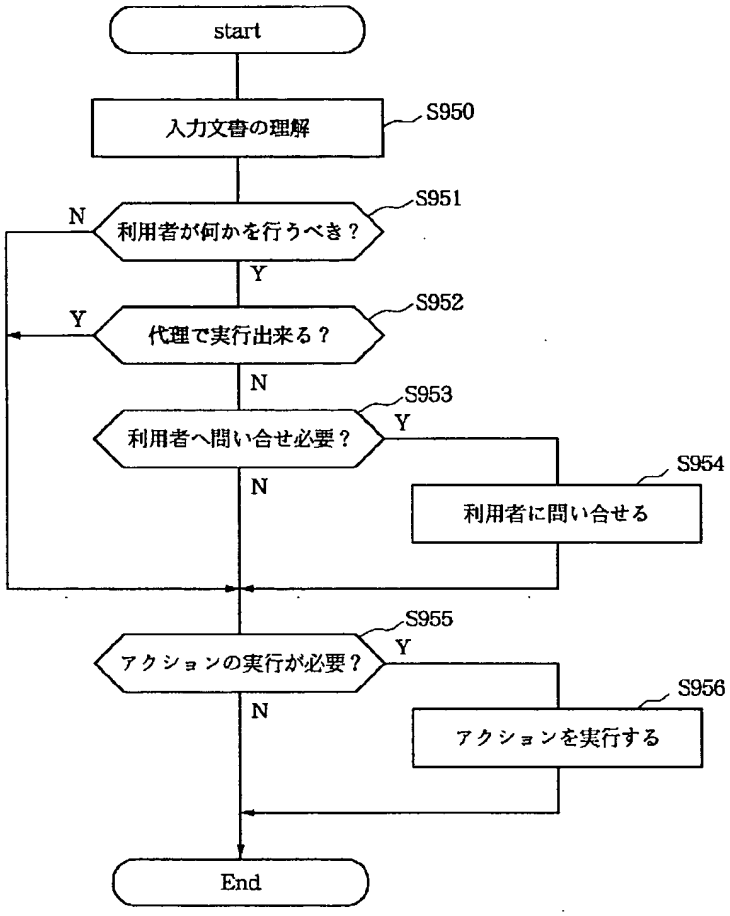
【図９６】



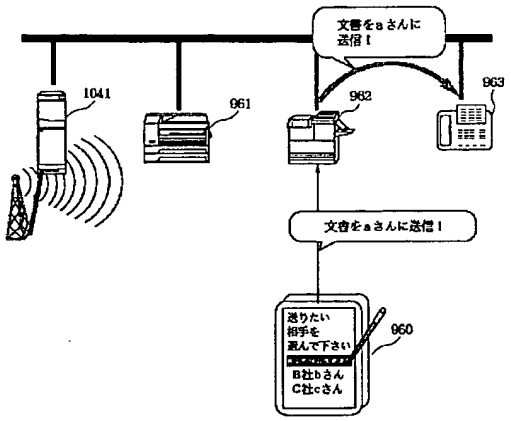
【図１０１】



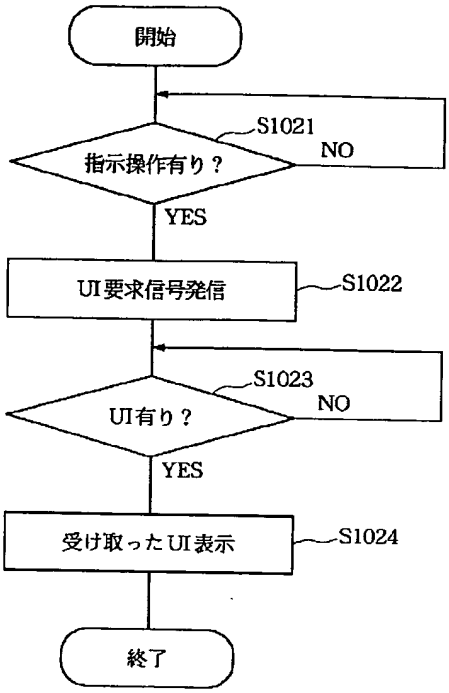
【図９５】


start
入力文書の理解
S950
S951
利用者が何かを行うべき？
N
Y
S952
代理で実行出来る？
Y
N
S953
利用者へ問い合せ必要？
Y
N
S954
利用者に問い合せる
S955
アクションの実行が必要？
Y
N
S956
アクションを実行する
End

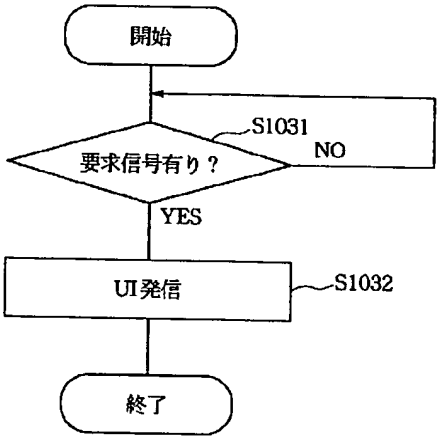
【図１１４】


文書をaさんに送信！
1041
961
962
963
文書をaさんに送信！
送りたい相手を選んで下さい
B社bさん
C社cさん
960

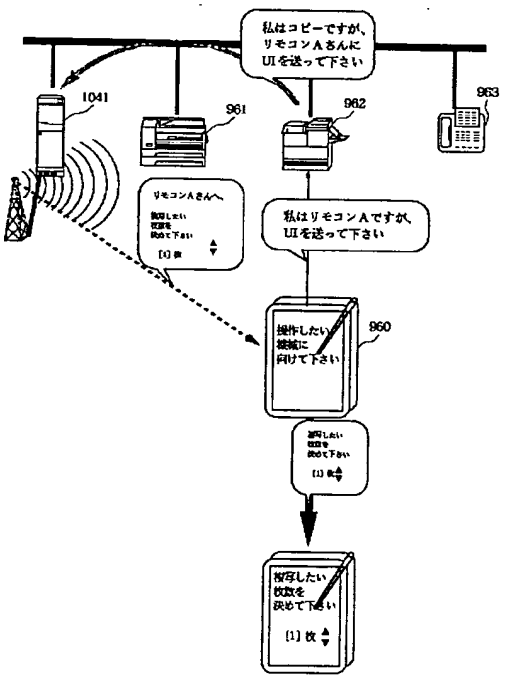
【図１０２】



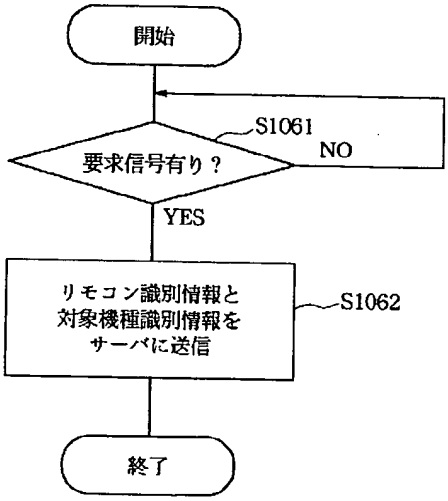
【図１０３】



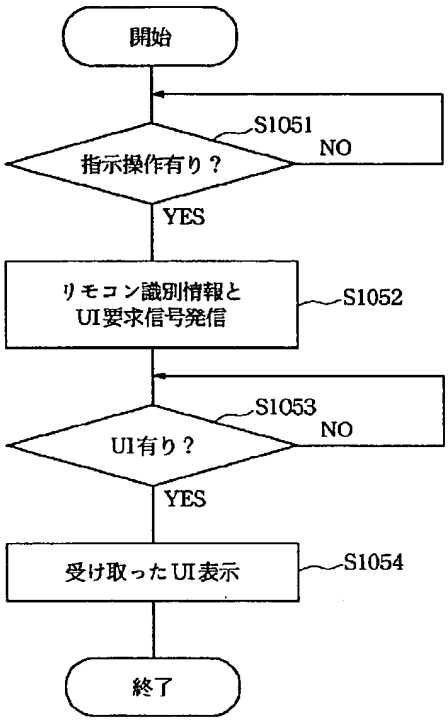
【図１０４】



【図１０６】



【図１０５】



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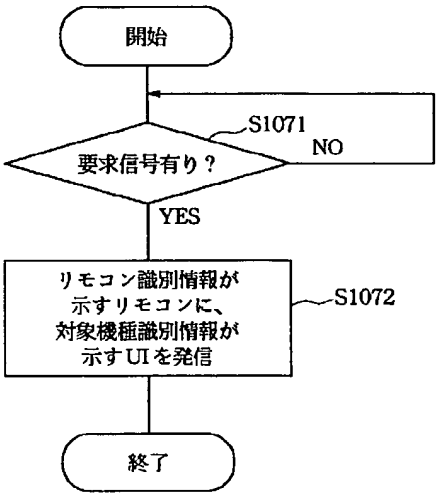

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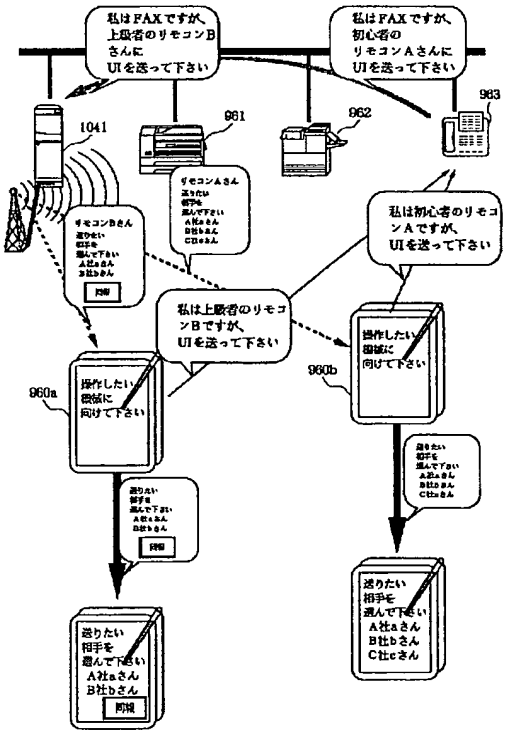

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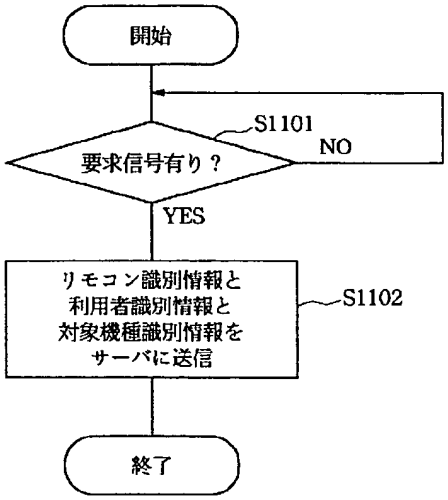

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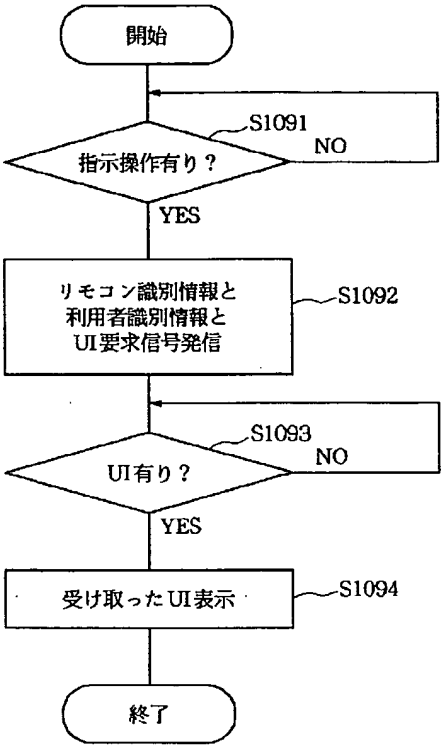

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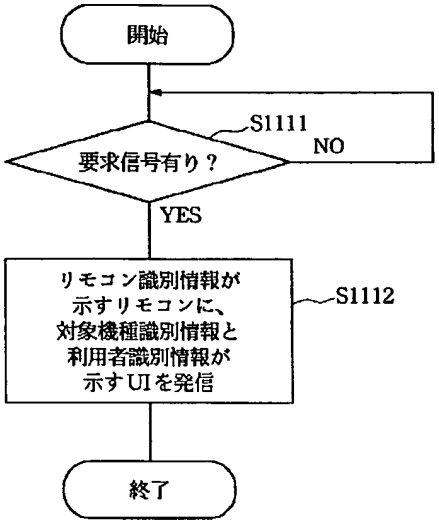

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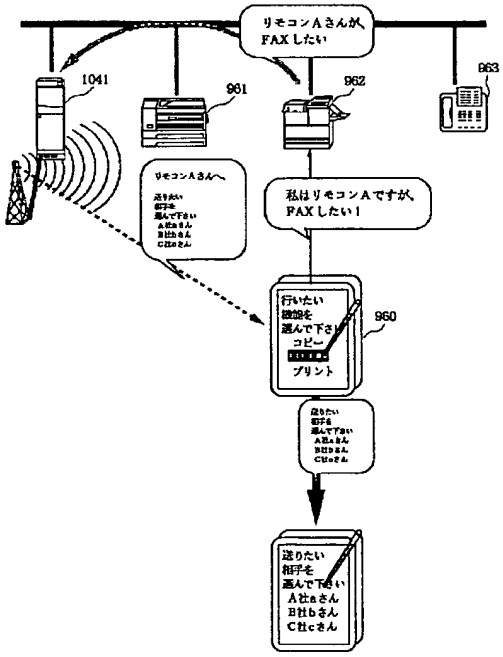

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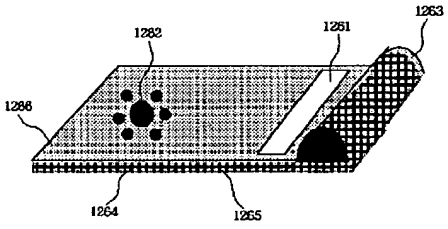
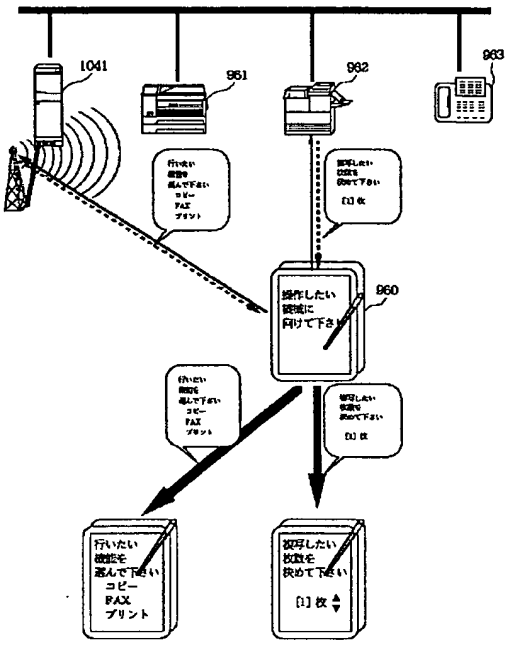


【図１２１】

時間	指示者	アクション
1996/7/5 10:00	Tom	File ABCをA社のaさんに送信
1996/7/3 18:50	Mary	File XYZを10部コピー

【図１１５】



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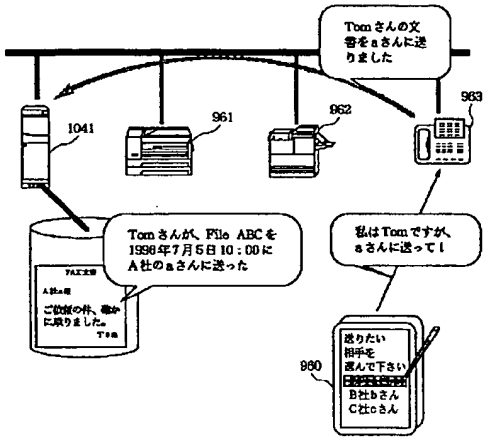
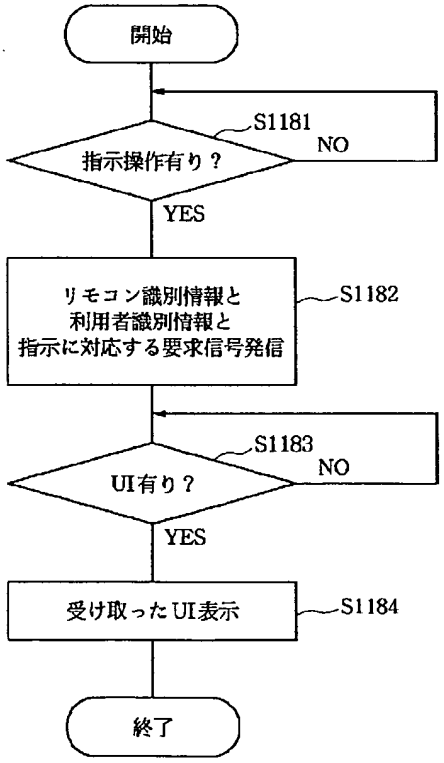
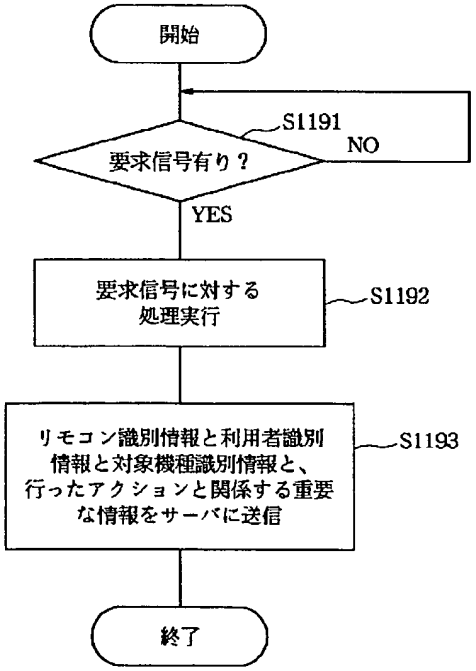


【図１１８】



【図１１９】



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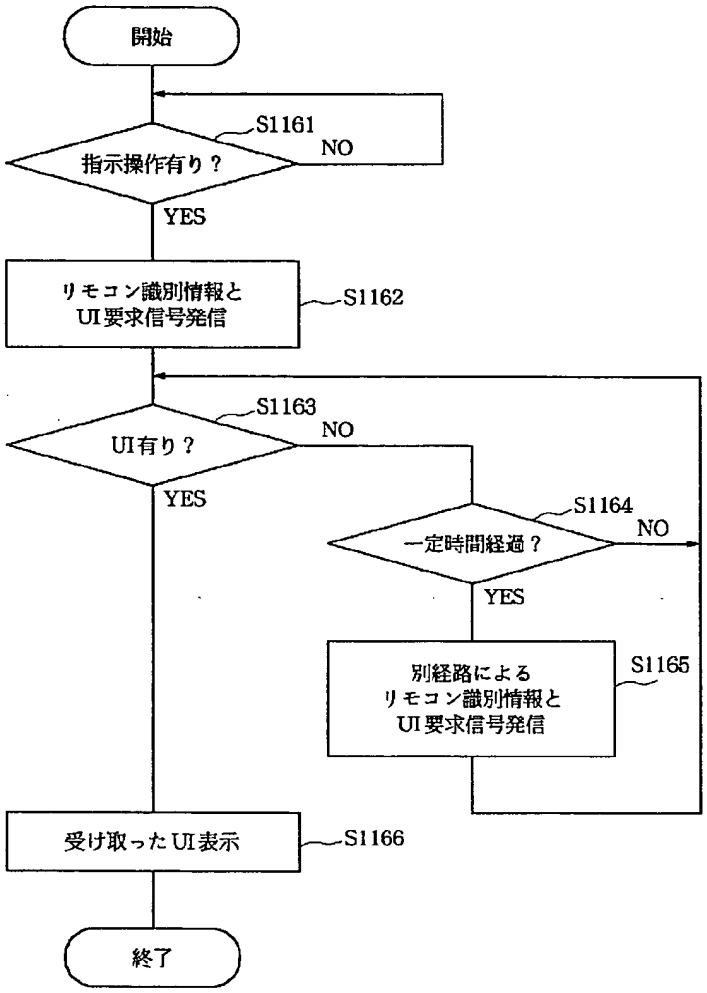
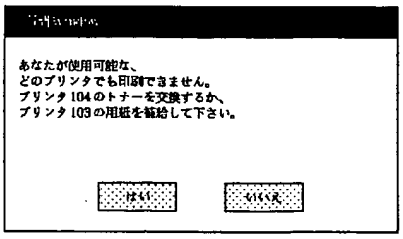


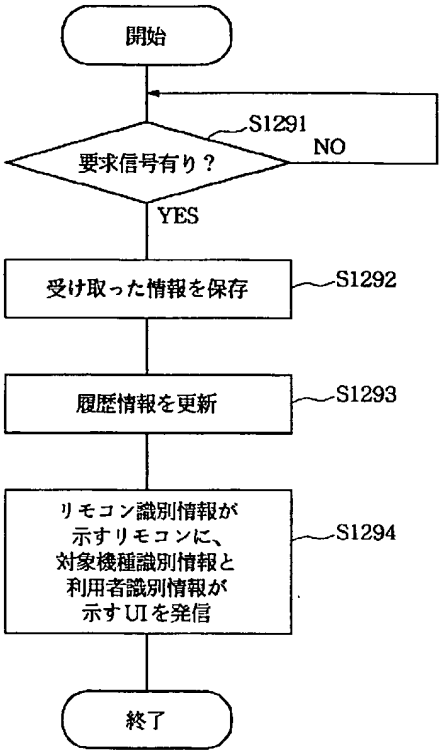
【図１２９】



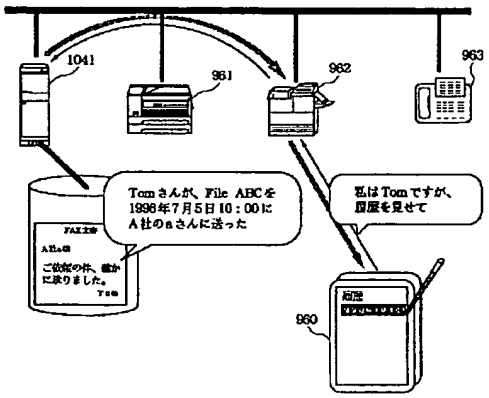
【図１３０】

入力	意味	要求項目
印刷	ACTION（印刷）	対象、品質、枚数
送る	ACTION（送信）	対象、送信先
取引先	品質（高品位）	
メンバー	品質（自由）	
枚	枚数	数

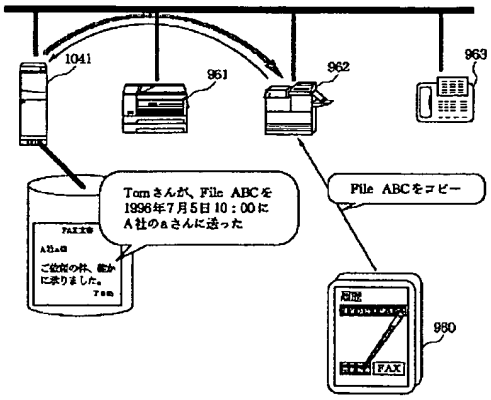
【図１２０】



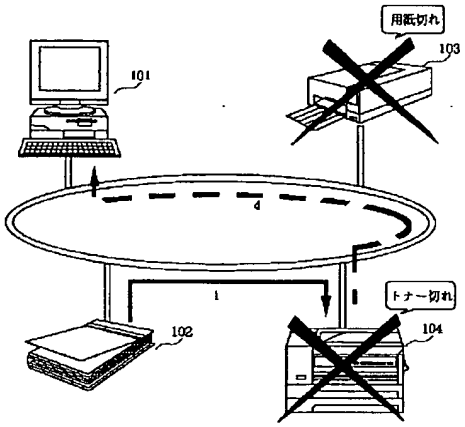
【図１２２】



【図１２３】



【図１２８】



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